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ICONES PLEUROTHALLIDINARUM

IX

SYSTEMATICS OF MYOXANTHUS

ADDENDA TO PLATYSTELE, PLEUROTHALLUS SUBGENUS SCOPULA AND SCAPHOSEPALUM

(ORCHIDACEAE)

Missouri Botanical Garden

ICONES PLEUROTHALLIDINARUM

IX

SYSTEMATICS OF MYOXANTHUS

ADDENDA TO PLATYSTELE, PLEUROTHALLUS SUBGENUS SCOPULA AND SCAPHOSEPALUM

CARLYLE A. LUER

Missouri Botanical Garden

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Carlyle A. Luer
3222 Old Oak Drive
Sarasota, FL. 34239

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CONTENTS

Myoxanthus pan ..... Frontispiece
Systematics of the genus *Myoxanthus* 1
Myoxanthus pan, Endres 315 12
Index to *Myoxanthus* 109
Addenda to *Platystele* 112
Addenda to *Pleurothallis* subgen. *Scopula* 120
Addenda to *Scaphosepalum* 124

Myoxanthus pan, province of Veraguas, Panama, altitude 950 meters above sea level, flowered in cultivation in Sarasota, Florida, 20 March 1977.

SYSTEMATICS OF THE GENUS *MYOXANTHUS* (ORCHIDACEAE)

ABSTRACT

A history of *Myoxanthus* Poepp. & Endl. is given and the genus is described. Keys to the three subgenera and species are given. Each species is described and illustrated with a black and white drawing. The specimens cited in the distributions are only a few for the more frequent species from various localities. A distribution map is included for each species.

New taxa:
Myoxanthus subgen. *Myoxanthus*
Myoxanthus subgen. *Satyria* Luer, subgen. nov.
Myoxanthus subgen. *Silenia* Luer, subgen. nov.
Myoxanthus sect. *Antennella* Luer, sect. nov.
Myoxanthus sect. *Myoxanthus*
Myoxanthus sect. *Scandentia* Luer, sect. nov.
Myoxanthus antennifer Luer & Hirtz, sp. nov.
Myoxanthus balaeniceps (Luer & Dressler) Luer, comb. nov.
Myoxanthus dasyllis Luer & Hirtz, sp. nov.
Myoxanthus epibator Luer & Escobar, sp. nov.
Myoxanthus fimbriatus Luer & Hirtz, sp. nov.
Myoxanthus neillii Luer & Dodson, sp. nov.
Myoxanthus pulvinatus (Barb. Rodr.) Luer, comb. nov.

Three times in the history of the pleurothallids this genus was recognized independently by three authors and subsequently reduced to the synonymy of *Pleurothallis* by others. Eduard Poeppig was the first explorer in the New World to collect a species of the genus. This first species was described in a new genus as *Myoxanthus monophyllus* by Endlicher in 1835. Apparently not believing that the criteria to support the new genus differed sufficiently from *Pleurothallis*, Lindley transferred the species to *Pleurothallis* the following year as *P. poeppigii*, the epithet *monophylla* being occupied. This decision probably deterred any other species from being described in *Myoxanthus*.

Karsten was the next author to propose a new genus for a species of *Myoxanthus* when he described *Duboisia reymondii* in 1847. He renamed the genus *Duboisia-Reymondia* the following year, because of prior use of the generic name (*Duboisia* R. Br. in the Solanaceae). He added *Duboisia-Reymondia lancipetala* in 1858. Failing to accept Karsten's criteria, Reichenbach transferred the former to *Pleurothallis* in 1854, and Schlechter transferred the latter to *Pleurothallis* in 1919.

The third effort to establish a genus for species of *Myoxanthus* was made by Barbosa Rodrigues in 1882 when he described *Chaetocephala punctata* and also transferred his *Restrepia lonchophylla* to *Chaetocephala*. For the first time the shaggy-pilose cauline sheaths and solitary, fasciculate flowers were mentioned. Cogniaux transferred the two species to *Pleurothallis*.

The close interrelationship of the species of *Myoxanthus* was recognized by Lindley when he listed together those few known to him (albeit with others) in section *Aggregatae* in his *Folia Orchidacea Pleurothallis* in 1859. The genus was resurrected in 1982 when 38 species were counted, and amplified with eight more in 1986. The addition of this latter group broadened the original scope for *Myoxanthus*, but cellular morphology of the leaves has supported their inclusion (Pridgeon, 1982). The cellular morphology is somewhat similar in *Dresslerella* Luer. Grossly, *Myoxanthus* seems most closely related to *Pleurothallis* subgenus *Acianthera*.

Although morphologically variable, both vegetatively and florally, the species of *Myoxanthus* form a unit recognizably distinct from the great masses in *Pleurothallis*. Unless one is familiar with the species, these subtle differences will not be appreciated. All the species are characterized by a well-developed ramicaul that is usually borne by a short rhizome, but occasionally repent and occasionally prolific habits are seen. The sheaths of the ramicauls, especially the lowermost sheaths, are scurfy in the majority of species. The integument bears more or less transverse, variously formed appendages of unicellular trichomes that give the sheaths a pubescent or shaggy appearance (Figure 1.).

As presently conceived, the shaggy sheaths of the ramicauls are not a positive diagnostic criterion. The sheaths of the ramicauls of some unrelated taxa (*Pleurothallis* subgenus *Acianthera* section *Tomentosae*, *Restrepiopsis reichenbachiana* and some species of *Stelis*) are also invested with trichomes. Three species attributed to *Myoxanthus* (*P. hirtipes, P. scabripes* and *P. spilantha*) have been discovered to belong to section *Tomentosae* of *Pleurothallis*. The species of subgenera *Satyria* (except for *M. pan*) and *Silenia* have sheaths that lack the trichomes.

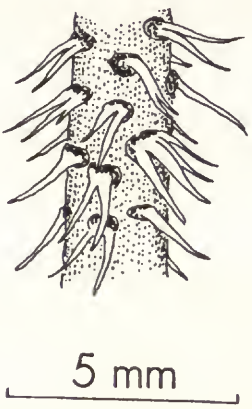


Figure 1. Trichomes of a sheath of a ramicaul of *Myoxanthus affinis*.

The flowers are solitary. They are produced apically in subgenus *Silenia*, and laterally near the apex, either singly or many simultaneously in a fascicle in subgenus *Myoxanthus*. In subgenus *Satyria* the flowers emerge from low on the ramicaul, or from the rhizome. In all cases the inflorescence emerges without an annulus.

A basal inflorescence is not unique. A pleurothallid species with a racemose inflorescence and another with a single-flowered inflorescence, both produced from the rhizome, were first noted by Endres in two Costa Rican species about 1867. These most unusual species were not formally described until the twientieth century. In 1923, Schlechter proposed *Brenesia costaricensis* (*Pleurothallis lateralis* L.O.Wms.) in a new genus for the species that produced racemes from the rhizome. Schlechter compared the basally borne inflorescence, at that time unpublished in the Pleurothallidinae, to some species of *Coelogyne* Lindley and *Epidendrum* Linnaeus. Ames had described a closely related species from Guatemala as *P. johnsonii* only a few months earlier, but from a specimen with a terminal inflorescence. Later it was discovered that *P. johnsonii* also produced a basal inflorescence. Both these species are included in *Pleurothallis* subgenus *Acianthera*, confirmed by microscopic foliar morphology of *P. johnsonii* (Pridgeon, pers. comm.)

The species producing a single flower from the rhizome was published in 1976 as *Pleurothallis pan* (frontispiece). A meticulous, acurately detailed, pencil illustration by Endres is present in Reichenbach's herbarium at W (see page 12 for photocopy). This unique species with trichome-invested sheaths is included in *Myoxanthus*, confirmed by the cellular anatomy of the leaves as well as the gross floral morphology. It is obviously related to *M. lappiformis* that does not have scurfy sheaths.

Myoxanthus is further characterized by sepals that are usually fleshy and often pubescent. The petals are fleshy-thickened, usually toward the apex, sometimes forming club-shaped osmophores. The lip is thick, of many shapes, and delicately hinged to a thick column-foot. The column is semiterete, variably winged or toothed, with a variably hooded, ventral anther with a pair of free, ovoid pollinia. The anther cap is cellular-glandular, often ciliate or fimbriate on the upper edge.

The flowers of all the species are probably resupinate. This is difficult to determine in a crowd of single flowers or a solitary, nodding flower. As with most other pleurothallids, the resupination does not result from a twisting of the pedicel and ovary, but from a "backward" bending of the pedicel to place the lip lowermost in the flower.

Currently, 47 species in three subgenera are recognized in *Myoxanthus*. The species are distributed through the moist forests of the Neotropics from Mexico through the Andes and into southern Brazil. None is known from the Antilles except for one Central American species, *M. uncinatus*, that also occurs in Jamaica. As in other pleurothallid genera, a few species are frequent and widely distributed while other species are rare and local. Most of them are easily cultivated in cool greenhouse conditions.

Myoxanthus Poepp. & Endl., Nov. Gen. Sp. Pl. 1: 50, 1835.

Type: *Myoxanthus monophyllus* Poepp. & Endl., Nov. Gen. Sp. Pl. 1: 50, 1835.
Ety.: From the Greek *myoxanthos*, "a mouselike flower," perhaps referring to the appearance of the mass of flowers of the type.

Syn.: *Duboisia* Karst., Allg. Gartenzeitung 15: 394, 1847, not R. Br. 1810.
Type: *Duboisia reymondii* Karst., Allg. Gartenzeitung 15: 394, 1847.
Ety.: Named in honor of Dr. Bois Reymond, French physicist.

Syn.: *Duboisia-Reymondia* Karst., Bot. Zeitung (Berlin) 6: 397, 1848.
Type: *Duboisia-Reymondia palpigera* Karst., Bot. Zeitung (Berlin) 6: 398, 1848.

Syn.: *Chaetocephala* Barb. Rodr., Gen. Sp. Orch. Nov. 2: 37, 1882.
Lectotype: *Chaetocephala punctata* Barb. Rodr., Gen. Sp. Orch. Nov. 2: 38, 1882. (Index Gen. 64/15508)
Ety.: From the Greek *chaetocephale*, "a hairy head," referring to the anther-cap.

Syn.: *Pleurothallis* sect. *Chaetocephala* (Barb. Rodr.) Cogn., Fl. Bras. 3(4): 589, 1896.
Lectotype: *Chaetocephala punctata* Barb. Rodr. (Luer, Monogr. Syst. Bot. 15: 38, 1986)

Syn.: *Reymondia* Karst. ex Kuntze, Lex. Gen. Phan. 481, 1903.
Type: *Duboisia reymondii* Karst.

Plants perennial, small to large in size, often coarse, epiphytic, occasionally terrestrial, caespitose, repent, or scandent, with the rhizome enclosed by usually hispidulous sheaths; roots coarse to slender. Ramicauls erect to ascending, or prolific, slender to stout, non-pseudobulbous, but sometimes swollen at the base, shorter, as long as, or longer than the leaf, unifoliate, partially enclosed by 3 to 10 elongate, imbricating, more or less loose, sometimes deciduous, often scurfy sheaths, the inflorescence emerging laterally from the ramicaul or rarely from the rhizome, without an annulus. **Leaf** erect, coriaceous to thickly coriaceous, smooth, sometimes suffused with purple, ovate, elliptical to narrowly elliptical, or linear, the apex acute to obtuse, shallowly notched with a mucro in the sinus, the base cordate, narrowly cuneate, sessile or petiolate. **Inflorescence** a single flower, or a fascicle of single flowers, produced successively or simultaneously, borne by a slender or stout peduncle, commonly abbreviated, with a bract; floral bracts thin, tubular, sometimes inflated, sometimes pubescent or spiculate; pedicels short, stout, enclosed by the floral bract; ovary glabrous, shortly pubescent to densely pubescent or spiculate, trivalvate; **sepals** conspicuous, more or less fleshy, variously colored, smooth to pubescent, more or less ovate or narrowly ovate, sometimes acuminate, but without tails, the dorsal sepal free or connate at the base to the lateral sepals to form a sepaline cup, the lateral sepals essentially free to completely connate; **petals** fleshy, often thickened toward the apex which may be clavate or elongate, sometimes verrucose, the blade oblong, ovate to elliptical, smooth to notched to serrate; **lip** proportionately small, fleshy, rigid, smooth to verrucose, usually bicallous, often with lateral lobes, the disc variously callous, the base more or less truncate, sometimes with basal lobules, usually delicately hinged to the column-foot, sometimes firmly fixed; **column** stout, semiterete, variously winged or toothed, the anther ventral, more or less hooded, the anther cap usually ciliate or fringed on the upper margin, the pollinia 2, yellow, obovoid, with a more or less granular viscidium, the rostellum retrorse, the stigma ventral, the base of the column developed into a concave column-foot with the apex of the ovary.

The genus is divided into three subgenera. *Myoxanthus* is characterized by ramicauls with scurfy sheaths, and the inflorescence borne near the apex. The flowers are borne singly, either successively or simultaneously. *Satyria* is characterized by a solitary flower that is borne either low on the ramicaul or from the rhizome (four species). Only one species (*M. pan*) has scurfy sheaths. *Silenia* is distinguished by loose, non-scurfy sheaths and single flowers that are always borne terminally at the base of the leaf (three species). The anther-caps of the latter two subgenera are ciliate on the upper margin, as is seen in many species of subgenus *Myoxanthus*.

Myoxanthus subgenus **Myoxanthus**

Type: *Myoxanthus monophyllus* Poepp. & Endl.

This subgenus contains the majority of the species. It is subdivided into three sections: one with a scandent or prolific habit, and two with a repent or caespitose, non-prolific habit. The latter two sections are divided by the inflorescence: one that produces single flowers successively, and the other that produces a few to many single flowers simultaneously in a fascicle.

Myoxanthus section **Antennella** Luer, sect. nov.

Type: *Pleurothallis ceratothallis* Reichb. f. = *Myoxanthus ceratothallis* (Reichb. f.) Luer.
Ety.: From the Latin *antenna*, "an antenna," referring to the usually prominent apices of the petals.

Habitus caespitosus repensve. Inflorescentia pauciflora floribus successivis.

The ramicauls of this section are produced from a rhizome that varies from being very short to produce a caespitose habit, to elongate to produce a shortly repent or a long-repent habit. The flowers are produced successively, one, two or sometimes three at a time. The apices of the petals are commonly thickened or clavate.

Myoxanthus section **Myoxanthus**

Type: *Myoxanthus monophyllus* Poepp. & Endl.

The ramicauls of this section are produced from a rhizome that varies from being very short to produce a caespitose habit, to elongate to produce a shortly repent habit. A few to many flowers are produced simultaneously in a congested fascicle.

Myoxanthus section **Scandentia** Luer, sect. nov.

Type: *Pleurothallis scandens* Ames = *Myoxanthus scandens* (Ames) Luer.
Ety.: From the Latin *scandens*, "climbing," referring to the habit.

Habitus scandens ramicaulibus proliferantibus.

This section contains the seven scandent species of the genus that produce the ramicauls from the apex of the preceding ramicaul instead of a rhizome. The lowermost ramicaul produces the roots and it is usually much longer than the upper ramicauls. The shorter, upper ramicauls are often produced in fascicles of a few to many from the apex of a lower ramicaul.

Myoxanthus subgenus **Satyria** Luer, subgen. nov.

Type: *Pleurothallis pan* Luer = *Myoxanthus pan* (Luer) Luer.
Ety.: From the Latin *satyrus*, "a satyr, a woodland deity," in allusion to the fancied appearance of the flowers.

Inflorescentia uniflora lateralis ex ramicaule vel ex rhizomate.

This subgenus is characterized by a single-flowered inflorescence that is always borne laterally either from low on the ramicaul or from the rhizome. The anther-cap is ciliate on the upper margin as seen in subgenus *Myoxanthus*. This subgenus contains four species: *M. balaeniceps* and *M. lappiformis* with the tip of the dorsal sepal held by the synsepal, and *M. pan* and *M. stonei* with the tip of the dorsal sepal free.

Myoxanthus subgenus **Silenia** Luer, subgen. nov.

Type: *Pleurothallis aspasicensis* Reichb. f. = *Myoxanthus aspasicensis* (Reichb. f.) Luer.
Ety.: From the Latin *silenus*, "an old, woodland deity," in allusion to the fancied appearance of the flowers.

Inflorescentia uniflora terminalis.

This subgenus is characterized by a single-flowered inflorescence that is always borne terminally from the ramicaul at the conduplicate base of the leaf. The flowers are fleshy and densely short-pubescent externally with the hairs produced in clumps. The anther-cap is ciliate on the upper margin as in *Myoxanthus*. Three species are included: *M. aspasicensis, M. sempergemmatus* and *M. uncinatus*.

SPECIES ATTRIBUTED TO *MYOXANTHUS* AND LIST OF ILLUSTRATIONS

Myoxanthus affinis (Lindley) Luer ..... Plate 1.
Myoxanthus affinoides Luer ..... Plate 2.
Myoxanthus antennifer Luer & Hirtz ..... Plate 3.
Myoxanthus aspasicensis (Reichb. f.) Luer ..... Plate 45.
Myoxanthus balaeniceps (Luer & Dressler) Luer ..... Plate 41.
Myoxanthus beyrichii (Reichb. f.) Luer = **Pleurothallis scabripes**
Myoxanthus ceratothallus (Reichb. f.) Luer ..... Plate 4.
Myoxanthus chloë (Luer & Vásquez) Luer ..... Plate 5.
Myoxanthus cimex Luer & Escobar ..... Plate 6.

Myoxanthus colothrix (Luer) Luer ..... Plate 7.
Myoxanthus dasyllis Luer & Hirtz ..... Plate 8.
Myoxanthus ephelis (Luer) Luer ..... Plate 9.
Myoxanthus epibator Luer & Escobar ..... Plate 10.
Myoxanthus eumeces (Luer) Luer ..... Plate 11.
Myoxanthus exasperatus (Lindley) Luer ..... Plate 12.
Myoxanthus fimbriatus Luer & Hirtz ..... Plate 13.
Myoxanthus frutex (Schltr.) Luer ..... Plate 14.
Myoxanthus georgei (Luer) Luer ..... Plate 15.
Myoxanthus gorgon Luer ..... Plate 16.
Myoxanthus gyas (Luer & Vásquez) Luer ..... Plate 17.
Myoxanthus herzogii (Schltr.) Luer = **Myoxanthus ceratothallis**
Myoxanthus hirsuticaulis (Ames & Schweinf.) Luer ..... Plate 18.
Myoxanthus hirtipes (Schltr.) Luer = **Pleurothallis hirtipes** Schltr.
Myoxanthus hystrix (Reichb. f.) Luer ..... Plate 19.
Myoxanthus lancipetalus (Karst.) Luer = **Myoxanthus ceratothallis**
Myoxanthus lappiformis (Heller & L.O.Wms.) Luer ..... Plate 42.
Myoxanthus lonchophyllus (Barb. Rodr.) Luer ..... Plate 20.
Myoxanthus mejiae (Garay & Dunsterv.) Luer ..... Plate 21.
Myoxanthus melittanthus (Schltr.) Luer ..... Plate 22.
Myoxanthus merae (Luer) Luer ..... Plate 23.
Myoxanthus monophyllus Poepp. & Endl. ..... Plate 24.
Myoxanthus neillii Luer & Dodson ..... Plate 25.
Myoxanthus octomeriae (Schltr.) Luer ..... Plate 26.
Myoxanthus octomerioides (Lindley) Luer ..... Plate 27.
Myoxanthus pan (Luer) Luer ..... Plate 43.
Myoxanthus parahybunensis (Barb. Rodr.) Luer = **Myoxanthus exasperatus**
Myoxanthus parvilabius (C. Schweinf.) Luer ..... Plate 28.
Myoxanthus pastacensis (Luer) Luer = **Myoxanthus aspasicensis**
Myoxanthus priapus Luer ..... Plate 29.
Myoxanthus pulvinatus (Barb. Rodr.) Luer ..... Plate 30.
Myoxanthus punctatus (Barb. Rodr.) Luer ..... Plate 31.
Myoxanthus reymondii (Karst.) Luer ..... Plate 32.
Myoxanthus sarcodactylae (Luer) Luer ..... Plate 33.
Myoxanthus scabripes (Lindley) Luer = **Pleurothallis scabripes** Lindley
Myoxanthus scandens (Ames) Luer ..... Plate 34.
Myoxanthus seidelii (Pabst) Luer = **Myoxanthus lonchophyllus**
Myoxanthus sempergemmatus (Luer) Luer ..... Plate 46.
Myoxanthus serripetalus (Krzl.) Luer ..... Plate 35.
Myoxanthus simplicicaulis (C. Schweinf.) Luer ..... Plate 36.
Myoxanthus speciosus (Luer) Luer ..... Plate 37.
Myoxanthus spilanthus (Barb. Rodr.) Luer = **Pleurothallis spilantha** Barb. Rodr.
Myoxanthus stonei (Luer) Luer ..... Plate 44.
Myoxanthus trachychlamys (Schltr.) Luer ..... Plate 38.
Myoxanthus uncinatus (Fawc.) Luer ..... Plate 47.
Myoxanthus uxorius (Luer) Luer ..... Plate 39.
Myoxanthus xiphion Luer ..... Plate 40.

KEY TO THE SUBGENERA OF *MYOXANTHUS*

1 Sheaths of the ramicauls scurfy; flowers produced laterally, singly, successively or simultaneously from near the apex of the ramicaul ..... *Myoxanthus*
1' Sheaths of the ramicauls not scurfy (except *M. pan*); flowers produced from low on the ramicaul, the rhizome, or terminally at the base of the leaf 2

2 Flowers produced laterally, singly from low on the ramicaul or the rhizome ..... *Satyria*
2' Flowers produced terminally, singly, successively or simultaneously from the base of the leaf ..... *Silenia*

KEY TO THE SECTIONS AND SPECIES OF SUBGENUS *MYOXANTHUS*

1 Habit caespitose or repent 2
1' Habit scandent, the ramicaul proliferating other ramicauls 34

2 Few to many flowers produced simultaneously 3
2' Flowers produced singly and successively (occasionally 2 or 3 flowers are present simultaneously) 15

Section *Myoxanthus*

3 Habit shortly but distinctly repent, 0.5 to 1 or more cm between ramicauls ..... *M. colothrix*
3' Habit very shortly repent to caespitose 4

4 Floral bract inflated, enclosing the base of the sepals 5
4' Floral bract not enclosing the base of the sepals 6

5 Petals more than 20 mm long, with the apex slender ..... *M. monophyllus*
5' Petals less than 15 mm long, with the apex thick ..... *M. gorgon*

6 Peduncles about 10 mm long (8 mm long or longer) 7
6' Peduncles usually less than 5 mm long (up to 6 mm long) 10

7 Sepals about 5 mm long; petals oblong ..... *M. neillii*
7' Sepals about 10 mm long; petals narrowed above the middle 8

8 Sepals about 5 mm wide; sepals and petals prominently striped in purple ..... *M. speciosus*
8' Sepals less than 3.5 mm wide; sepals and petals not prominently striped 9

9 Lip with the apex narrowly rounded; column with a pair of acute, apical teeth ..... *M, affinis*
9' Lip with the apex dilated; column without a pair of teeth ..... *M. exasperatus*

10 Sepals pubescent externally....11
10' Sepals glabrous....13

11 Lip with the margins fimbriate, more or less straight....*M. dasyllis*
11' Lip with the margins minutely erose, more or less obtusely angled near the middle....12

12 Leaf less than 1.5 cm wide; calli of the lip smooth, converging above the middle....*M. affinoides*
12' Leaf 2 to 3 cm wide; calli of the lip denticulate, parallel near the margin....*M. sarcodactylae*

13 Sepals less than 4 mm long; lip with a verrucose callus extending from the base to the apex....*M. pulvinatus*
13' Sepals more than 6 mm long; lip without a verrucose callus extending from the base to the apex....14

14 Sepals about twice as long as broad; lip with the sides obtusely angled below the middle, the disc smooth....*M. octomerioides*
14' Sepals more than twice as long as broad; lip with the sides not angled, the disc more or less minutely verrucose....*M. octomeriae*

Section *Antennella*

15 Habit long-repent, 1 or more cm between ramicauls....16
15' Habit very shortly repent to caespitose....17

16 Petals clavate....*M. hystrix*
16' Petals not clavate....*M. trachychlamys*

17 Petals clavate....18
17' Petals thickened but not clavate....23

18 Petals markedly clavate, more or less bulbous at the apex....19
18' Petals slightly clavate....21

19 Lip with neither lateral lobes nor basal lobules....*M. cimex*
19' Lip with lateral lobes and basal lobules....20

20 Leaf less than 2.5 cm wide; lip with acute marginal angles near the middle....*M. reymondii*
20' Leaf 2.5-4 cm wide; lip without marginal angles near the middle....*M. mejiae*

21 Lip oblong, revolute, without lobes....*M. mellitanthus*
21' Lip thick, not revolute, with basal lobules....22

22 Lip fringed at the apex....*M. lonchophyllus*
22' Lip verrucose, not fringed....*M. punctatus*

23 Sepals, petals and lip verrucose, the sepals more than 2.5 cm long....*M. serripetalus*
23' Sepals, petals and lip not verrucose, the sepals less than 2 cm long....24

24 Lip subquadrate, long-ciliate ..... *M. hirsuticaulis*
24' Lip not subquadrate, long-ciliate 25

25 Sepals glabrous externally, or with sparse hairs 26
25' Sepals pubescent externally 31

26 Lip convex at the broad apex, without lateral lobes ..... *M. uxorius*
26' Lip not convex at the apex, with lateral lobes 27

27 Petals longer than the sepals, with slender apices 28
27' Petals not longer than the sepals 29

28 Leaves narrowly ovate, 1.5-2 cm wide;
lip subpandurate-trilobed ..... *M. eumeces*
28' Leaves narrowly terete, less than 0.5 cm wide;
lip subquadrate-trilobed ..... *M. antennifer*

29 Lip with low, indistinct, lateral lobes ..... *M. merae*
29' Lip with broad, erect, lateral lobes 30

30 Leaf more than 1 cm wide; petals narrowed
above the middle ..... *M. georgei*
30' Leaf less than 1 cm wide; petals narrowed
above the basal third ..... *M. ephelis*

31 Leaf 2-3 cm wide; lip with uncinate, lateral lobes ..... *M. ceratothallis*
31' Leaf less than 1.5 cm wide; lip without uncinate lateral lobes 32

32 Lip minutely denticulate, with low, erect margins
below the middle ..... *M. simplicicaulis*
32' Lip not denticulate, with small triangular lateral lobes
near the middle, the margins not erect below the middle 33

33 Lip with a low, bilobed callus at the base ..... *M. xiphion*
33' Lip with a tall, erect callus at the base ..... *M. priapus*

Section *Scandentia*

34 Floral bract inflated, enclosing the base of the corolla 35
34' Floral bract not enclosing the base of the corolla 37

35 Ramicauls produced singly; leaves up to 3 cm wide;
petals far surpassing the sepals in length ..... *M. gyas*
35' One to many ramicauls produced by a ramicaul; leaves not
more than 1.5 cm wide; petals not surpassing the sepals 36

36 Habit stout, erect; sepals greater than 11 mm long ..... *M. frutex*
36' Habit slender, pendent; sepals less than 9 mm long ..... *M. chloë*

37 Petals long-ciliate-fimbriate ..... *M. fimbriatus*
37' Petals neither ciliate nor fimbriate 38

38 Lip thick, suborbicular, without lateral lobes*M. parvilabius*
38' Lip oblong-subpandurate, with lateral lobes 39

39 Leaves less than 5 mm wide; lip with low, uncinate lateral lobes ..... *M. scandens*
39' Leaves 8-11 mm wide; lip with tall, broad, uncinate lateral lobes ..... *M. epibator*

KEY TO THE SPECIES OF SUBGENUS *SATYRIA*

1 Dorsal sepal subacute to obtuse, free from the lateral sepals 2
1' Dorsal sepal narrowly acute, the tip held by the lateral sepals 3

2 Sheaths of the ramicauls pubescent; lip with a narrow, horse shoe-shaped callus above the base ..... *M. pan*
2' Sheaths of the ramicauls glabrous; lip with a broad, smooth callus above the base ..... *M. stonei*

3 Sepals less than 2 cm long; lip with a low, transversely rugose callus above the base ..... *M. lappiformis*
3' Sepals more than 3 cm long; lip with a tall, longitudinal callus above the base ..... *M. balaeniceps*

KEY TO THE SPECIES OF SUBGENUS *SILENIA*

1 Flowers not cleistogamous; lip obtuse 2
1' Flowers cleistogamous; lip acute ..... *M. sempergemmatus*

2 Flowers produced singly; lip with a broad, smooth callus above the base ..... *M. uncinatus*
2' Flowers produced singly, often more than one at a time; lip with a narrow, horse shoe-shaped callus above the base ..... *M. aspasicensis*

Figure 2. *Myoxanthus pan, Endres 315.* This detailed pencil illustration by A. Endres together with a herbarium specimen were probably in Reichenbach's possession for 20 years before his death in 1889. This species as well as many others collected and illustrated by Endres around 1867 were not formally described until the twentieth century. This specimen with hundreds of others lay on loan at AMES from W for about 37 years until 1991.

3684

Myoxanthus affinis (Lindley) Luer, Selbyana 7: 35, 1982.

6238 Bas.: *Pleurothallis affinis* Lindley, Companion Bot. Mag. 2: 354, 1836.
Ety.: From the Latin *affinis*, "allied to," referring to *Myoxanthus monophyllus*.

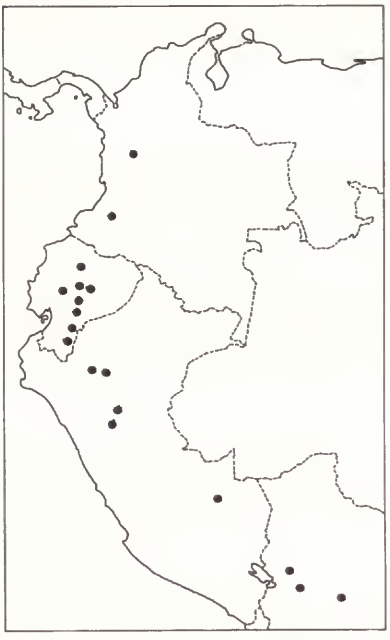
6364 Syn.: *Pleurothallis rigidifolia* Reichb. f., Bonplandia 3: 224, 1855.
Ety.: From the Latin *rigidifolius*, "rigid-leaved," referring to the foliage.

1072 Syn.: *Humboldtia affinis* (Lindley) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

1309 Syn.: *Humboldtia rigidifolia* (Lindley) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

15400 Syn.: *Pleurothallis furfuracea* Lehm. & Krzl., Bot. Jahrb. Syst. 26: 441, 1899.
Ety.: From the Latin *furfuraceus*, "scurfy," referring to the sheaths of the ramicauls.

Plant large, epiphytic, very shortly repent to densely caespitose; roots coarse. Ramicauls stout, erect, 10-50 cm long, enclosed by 5-10 long, tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly ovate, acute, 10-30 cm long, 1.5-6 cm wide, cuneate below into the subpetiolate base ca. 1 cm long. **Inflorescence** a fascicle of a few to many, single, simultaneous flowers, at the apex of the ramicaul, the peduncles minutely pubescent, 8-15 mm long; floral bracts infundibular, pubescent, 3-6 mm long, enclosing pedicel; pedicel, stout, 2-3 mm long; ovary cellular-glandular to densely short-pubescent, 1.5-2 mm long; **sepals** white to yellowish-green, sparsely or shortly pubescent, the dorsal sepal narrowly ovate, acute, subacute, to narrowly obtuse, 6-15 mm long, 1.5-4 mm wide, 5-veined, the lateral sepals connate at the base, narrowly ovate, oblique, acute, 6-14 mm long, 2-4 mm wide, 4- to 5-veined; **petals** white, ovate in the lower third with minutely erose margins, thickened and linear above with revolute margins, acute, more or less cellular-glandular, 5.5-13 mm long, 1.5-3.5 mm wide above the base, 3-veined; **lip** white, more or less suffused with purple on the margins, ovate or oblong, slightly dilated in the lower third, 2.25-3 mm long, 1 mm wide, the apex rounded or obtuse, the margins more or less microscopically denticulate or erose, elevated below the middle, the disc with a low pair of longitudinal carinae from the base to above the middle, the base subtruncate, hinged on the end; **column** greenish white, stout, semiterete, 1.5-2 mm long, 1 mm wide, irregular at the apex with a pair of acute teeth, the foot concave, stout.



PERU: Dept. of San Martin: lithophytic near Chachapoyas, 1835, *Mathews 1899* (Holotype: K); Chachapoyas, 1840, *Mathews 3187* (G, holotype of *P. rigidifolia*; isotype: K). Dept. of Amazonas: Bongara, Pomacochas, Quebrada Corazón Jacko, alt. 8000 ft., 3 Apr. 1944, *W. H. Hodge 6151* (AMES). Dept. of Huanuco: Churubamba, alt. 1200 m, 17 Sept. 1936, *Yves Mexia 8198a* (AMES). Dept. of Junín: Chanchamayo, alt. 1500 m, Mar. 1930, *C. Schuncke 1276* (AMES0; Tarma, Agua Dulce, alt. 1900 m, 9 Mar. 1948, *F. Woytkowski 35435* (AMES, G, MO). Dept. of Madre de Dios: Río Manu, Coche Casu Station, alt. 350 m, 6 July 1984, *R. Foster 9586* (MO). Dept. of Pasco: Oxapampa, between Villarica and Paucartambo, 15 Nov. 1987, *D. Bennett, A. Bennett, M. Chase & A. Vargas 4178* (MO).
ECUADOR: Prov. of Chimborazo: near Puela, 10 Oct. 1968, *H. Lugo 578* (AMES). Prov. of Morona Santiago: Andes east of Sigsig, alt. 1800-2000 m, May 1887, *F. C. Lehmann 6511* (K, type of *P. furfuracea*, AMES, NY); valley of rios Negro and Chupianza, alt. 6500-7500 ft., 31 Oct. 1944, *W. H. Camp E-760* (NY); north of Gualaquiza, alt. 1000 m, 4 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12631* (MO); between Mendez and Limón, alt. 1000 m, 7 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12718* (MO); Cordillera del Condor: alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13564, 13571* (MO). Prov. of Napo: El Chaco, alt. 1800 m, Oct. 1984, *A. Hirtz 1980* (MO); Tena, Estación Biológica Jatun Sacha, alt. 400 m, 23 Jan. 1989, *C. Cerón 6007* (MO); between Puerto Napo and Michaualli, alt. 600 m, *F L Stevenson 88-119-2* (MO); above Baeza toward Quito, alt. 1840 m, 30

June 1986, *C. H. Dodson & T. A. Dodson 16532* (MO); Cosanga, 13 Aug. 1990, Mar. 1991, *A. Hirtz & S. Ortega 5404* (MO). Prov. of Pastaza: below Baños, alt. 1000 m, collected July 1975 by C. Luer et al., flowered in cultivation 30 Mar. 1981, *C. Luer 667* (SEL). Prov. of Pichincha: old road between Quito and Santo Domingo, alt. 1400-1650 m, 1 Nov. 1961, *C. H. Dodson & L. B. Thien 1220* (AAU, MO). Prov. of Tungurahua: without locality, *F. C. Lehmann 4503* (AMES); terrestrial on old lava bed west of Baños, alt. 1850, 28 May 1968, *G. Harling, G. Storm & B. Ström 9867* (AMES, GB); between Río Verde and Río Negro, alt. 1500 m, 12 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11181* (MO). Prov. of Zamora-Chinchipe: Loja-Zamora road, alt. 1600 m, 21 Aug. 1973, *L. Holm-Nielsen, S. Jeppersen, B. Løjtnant & B. Øllgaard 4025* (AAU, AMES, MO); south of Zamora, alt. 1100 m, 3 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12607* (MO); south of Yanzatza, alt. 850 m, 3 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12611* (MO).
BOLIVIA: Dept. of La Paz: Larecaja, Mapiri, alt. 5000 ft., 18 May 1886, *H. H. Rusby 2762* (AMES, NY); Sud Yungas, Río Bopi near Evenay, alt. 690-750 m, 27 July 1939, *B. A. Krukoff 10642* (AMES, NY). Dept. of Cochabamba: Chapare, epiphytic in forest northeast of Cochabamba, alt. 2000 m, collected by C. Luer, J. Luer & R. Vásquez, flowered in cultivation 22 Dec. 1981, *C. Luer 6784* (SEL).
COLOMBIA: Dept. of Antioquia: without locality, May 1873, *C. Patin* (K); without locality, flowered in cultivation by R. Londoño near Medellín, 20 Mar. 1989, *C. Luer 14313* (MO). Dept. of Cauca: Río Guaitara near Argelia, alt. 1500 m, 19 Sept. 1944, *E. L. Core 1312* (NY).

This large species was first collected by Mathews near Chachapoyas in Amazonian Peru in 1835 and described by Lindley the following year. Other collections by Mathews from the same area were described later by Reichenbach as *P. rigidifolia*.

Myoxanthus affinis is morphologically variable in its wide distribution in the Andes from the Central Cordillera of Colombia through Ecuador, where it is most frequent, and through Peru into Bolivia. Specimens intermediate between *M. affinis* and *M. exasperatus* occur.

Sometimes great masses of plants more than a meter in diameter accumulate. The ramicauls are long and stout with scurfy sheaths as in most species. The leaves are large, long and pointed, varying in length and width in various populations. The flowers are produced simultaneously by elongated peduncles, commonly about one centimeter long. The ovary is shortly pubescent to cellular-glandular. The floral parts of plants from various localities vary in size. The sepals are variously pubescent externally. Above the dilated lower third, the petals are narrowed and more or less fleshy and cellular-glandular with revolute margins. The lip is oblong-ovate with a low pair of calli from the base to above the middle. The column is stout with a pair of acute, apical teeth. The column of the very similar *M. exasperatus* lacks the teeth.

Grossly, herbarium specimens of *M. affinis* and *M. exasperatus* are often indistinguishable. This will account for misidentification of specimens that might be cited in the distribution.

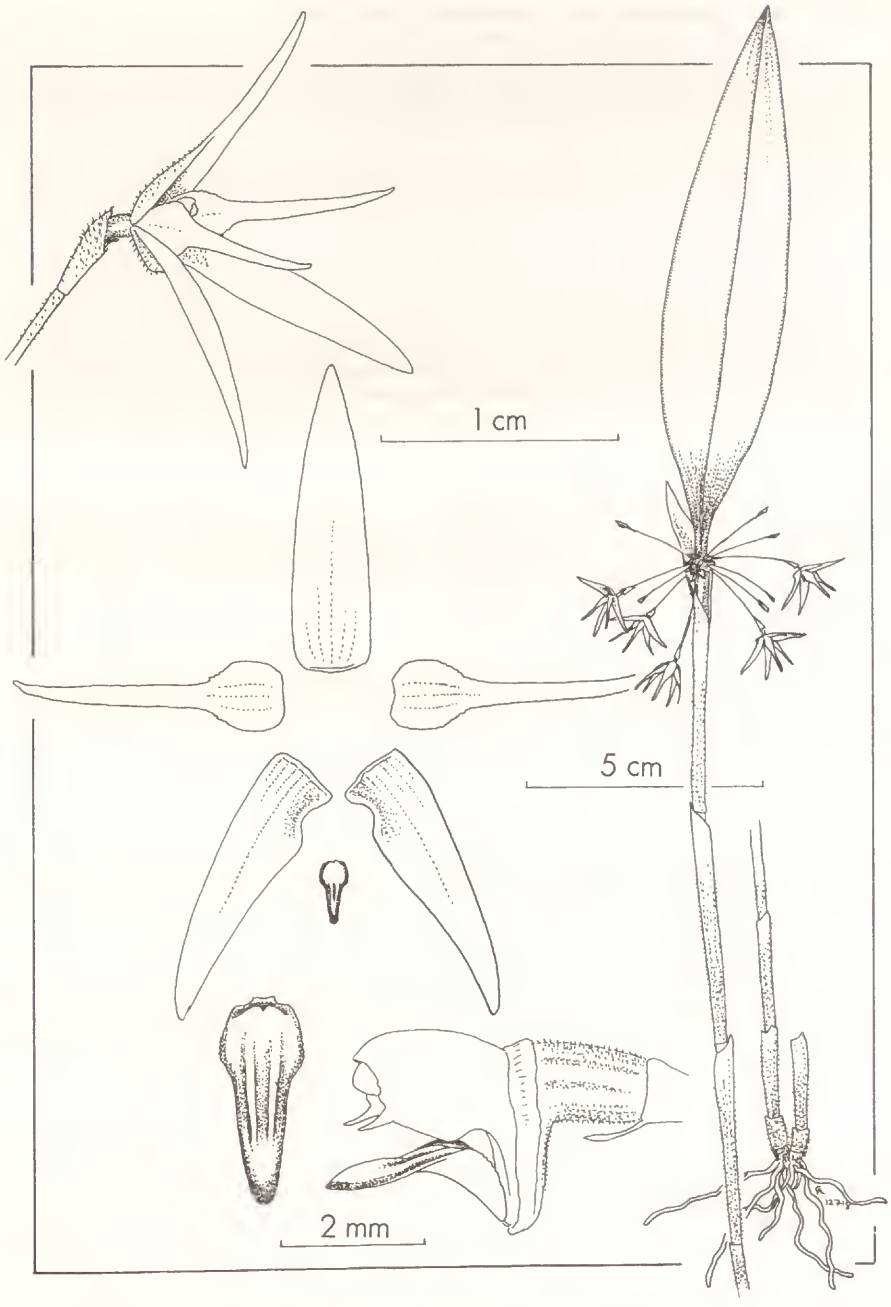


Plate 1. *Myoxanthus affinis* (Lindley) Luer

8340

Myoxanthus affinoides Luer, Phytologia 54: 385, 1983.

Ety.: Named for the similarity of the flowers of this species to those of *M. affinis*.

Plant medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, 10-34 cm long, enclosed by 5-8 long, tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, very narrowly ovate, acute, 7-15 cm long, 0.7-1.5 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a congested fascicle of a few, simultaneous, single flowers, at the apex of the ramicaul, the peduncles 1-3 mm long; floral bracts infundibular, red-spiculate, 3-5 mm long, enclosing pedicel and ovary; pedicel stout, 2-3 mm long; ovary densely short-pubescent, 1.5-2 mm long; **sepals** yellow-green, more or less lightly suffused with purple, shortly pubescent externally, cellular-glandular within, the dorsal sepal elliptical-ovate, obtuse, 9 mm long, 3-3.5 mm wide, the lateral sepals connate 1.5 mm at the base, ovate, oblique, subacute, 8 mm long, 3 mm wide, finely pubescent near the base; **petals** yellow, ovate in the lower third with erose margins, thickened and linear above, obtuse, 8.5-9 mm long, 2.5 mm wide above the base, 1 mm wide above the middle; **lip** yellow below the middle, dark purple above the middle, oblong-subpandurate, 3 mm long, 1.75 mm wide expanded, the margins dilated and erect below the middle, minutely denticulate, the apex rounded, the disc with a low pair of calli converging near the center, the base truncate with a pair of obtuse, membranous lobules, hinged on the end; **column** rosy white, stout, semiterete, 3 mm long, 1 mm wide, bidentate at the apex, the foot stout, concave.

ECUADOR: Prov. of Zamora-Chinchipe: epiphytic in forest south of the pass south of Yangana, alt. 2600 m, 3 Mar. 1982, *C. Luer, A. Andreetta, D. D'Alessandro & S. Dalström 7114* (Holotype: SEL); Quebrada Honda, south of Yangana, alt. 1800 m, June 1982, *D. D'Alessandro 238* (SEL); east of Yangana, alt. 2950 m, 22 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10792* (MO).

This species is apparently confined to southernmost Ecuador. The ramicauls are long and slender with scurfy sheaths, and long, extremely narrow leaves. The flowers are similar to those of *M. affinis*, but they are short-pedunculate like those of *M. dasyllis*. From the latter they are distinguished by the subpandurate lip with non-denticulate carinae.

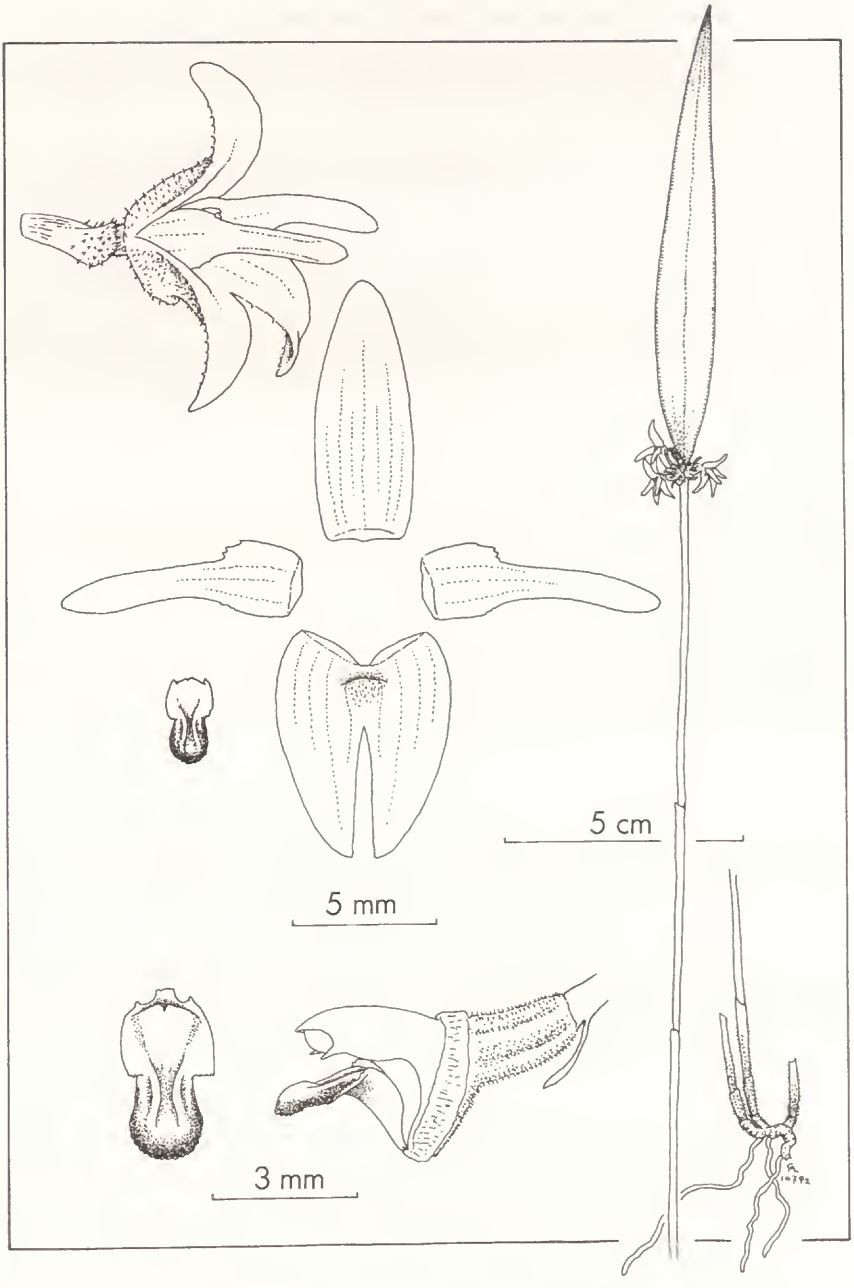


Plate 2. *Myoxanthus affinoides* Luer

Myoxanthus antennifer Luer & Hirtz, sp. nov.

Ety.: From the Latin *antennifer*, "antenna-bearing," referring to the elongated petals.

Planta elata gracillima, foliis angustissime linearibus, floribus fasciculatis brevipedunculatis, sepalis ovatis acutis, petalis apice anguste longilinearibus, labello subquadrato denticulato tricristato marginibus erectis infra lobis lateralibus uncinatis.

Plant tall and slender, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, 10-30 cm long, enclosed by 5-8 long, tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, very narrowly linear-ovate, acute, 10-13 cm long, 4-5 mm wide, gradually narrowed below to the sessile base. **Inflorescence** a congested fascicle of successive, single flowers, at the apex of the ramicaul, the peduncles 2 mm long; floral bracts infundibular, pubescent, 3 mm long, enclosing pedicel; pedicel stout, 1.5 mm long; ovary cellular-glandular, 2 mm long; **sepals** dark purple, glabrous except for a fine, long pubescence of the lateral sepals on the inner halves below the middle, the dorsal sepal ovate, acute, 7-8 mm long, 3-3.25 mm wide, the lateral sepals connate 1.5 mm at the base, ovate, oblique, acute, 6 mm long, 3 mm wide; **petals** white with purple veins, oblong in the basal quarter with minutely erose margins, thickened and narrowly linear-semiterete above, acute, 8 mm long, 2 mm wide above the base; **lip** greenish white, suffused with purple on the calli and margins, subquadrate, obtuse, denticulate, 2 mm long, 1.5 mm wide, the margins erect below an uncinate lateral lobe near the middle, the disc trilamellate, the lateral pair dentate above the middle, the middle continuing to the base, the basal margin membranous with a pair of minute teeth near the hinge on the end; **column** rose, stout, semiterete, 3 mm long, 1 mm wide, irregular at the apex with a pair of teeth, the foot stout, concave.

ECUADOR: Prov. of Zamora-Chinchipe: Cordillera del Condor, epiphytic in forest east of Los Encuentros, alt. 1650 m, 21 Jan. 1989, *C. Luer, J. Luer, P. Jesup & A. Jesup 14035* (Holotype: MO); same area, 18 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13451* (MO). Prov. of Morona-Santiago: Cordillera del Condor east of Guismé, alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13555* (K, MO). Prov. of Pastaza: forest east of Mera, alt. 1100 m, 28 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9782* (MO).
PERU: Dept. of Amazonas: Bongara, 15 Km below Pomacochas, alt. 1600 m, June 1985, *D. E. Bennett & A. Bennett 3432* (MO); north of Pomacochas toward Rioja, alt. 2150-2200 m, 2 June 1986, *S. Knapp et al. 7495* (MO).

This species is found in southeastern Ecuador and northeastern Peru at relatively low altitudes. Vegetatively this slender species resembles a large *Octomeria brevifolia* Cogn. with narrowly linear leaves often shorter than the ramicauls. Florally it resembles *Myoxanthus eumeces* with long, protruding apices of the petals, but the subquadrate, trilamellate lip with denticulate margins immediately distinguishes *M. antennifer*.

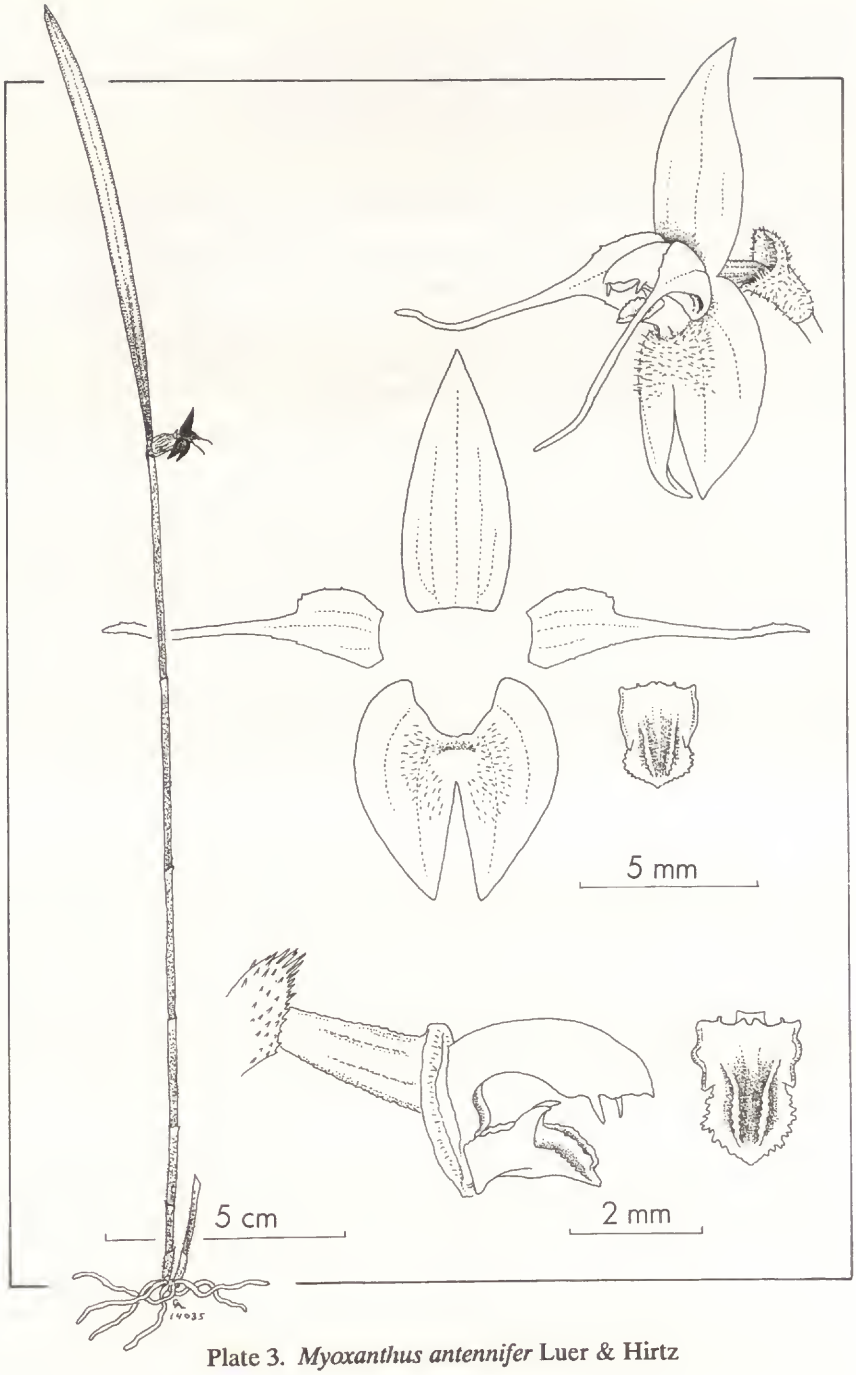


Plate 3. *Myoxanthus antennifer* Luer & Hirtz

Myoxanthus ceratothallis (Reichb. f.) Luer, Selbyana 7: 36, 1982.

Bas.: *Pleurothallis ceratothallis* Reichb. f., Bonplandia 2: 25, 1854.
Ety.: From the Greek *ceratothallos*, "with horned branches," possibly referring to the flowers at the apex of the ramicaul, or the hornlike lobes of the lip.

Syn.: *Pleurothallis longipes* Körnicke, Allg. Gartenzeitung 23: 281, 1855.
Ety.: From the Latin *longipes*, "with a long foot," alluding to the long ramicaul.

Syn.: *Dubois-Reymondia lancipetala* Karst., Fl. Colomb. 1: 95, 1858.
Ety.: From the Latin *lancipetalus*, "with lance-like petals," referring to the shape of the petals.

Syn.: *Humboldtia ceratothallis* (Reichb. f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

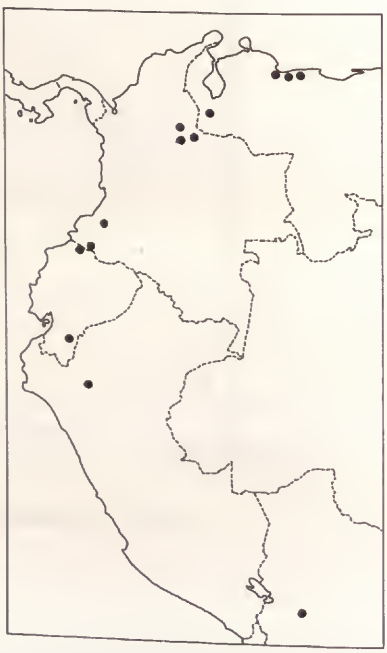
Syn.: *Pleurothallis lancipetala* (Karst.) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 6: 62, 1919.

Syn.: *Pleurothallis herzogii* Schltr., Repert. Spec. Nov. Regni Veg. 12: 487, 1913.
Ety.: Named in honor of Theodor Herzog who discovered this species in Bolivia.

Syn.: *Myoxanthus herzogii* (Schltr.,) Luer, Selbyana 7: 43, 1982.

Plant medium in size to large, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls stout, erect, 10-52 cm long, enclosed by 5-9 tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly ovate, acute, 10-21 cm long, 1.5-3.2 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles 3-5 mm long, enclosed by pubescent sheaths 3-5 mm long; floral bracts pubescent, 4-5 mm long; pedicels 3-5 mm long; ovary 3-4 mm long, minutely pubescent; **sepals** greenish, mottled and veined in brown or red-purple, ciliate, lightly pubescent externally, the dorsal sepal ovate, acute, 10-12 mm long, 4-5 mm wide, 5-veined, the lateral sepals semi-orbicular or subfalcate, obtuse, more or less recurved, connate from near the middle to near the apex, 8 mm long, 8 mm wide, each 4-veined, convex and pubescent at the base above the mentum with the column-foot; **petals** elliptical in the lower half, abruptly contracted with 1 or 2 teeth near the middle into a narrow, thickened apex, 6-9 mm long, 3.5-4 mm wide in the lower half, 3-veined; **lip** yellow, variously suffused with purple, ovate-trilobed, 2.5-3 mm long, 2-3 mm wide expanded, the middle lobe ovate, rounded, the lateral lobes below the middle, broadly falcate, acute, erect, the disc with a pair of parallel lamellae on the middle third, the base subtruncate, with a pair of minute, elongated lobules, hinged on the end; **column** variously suffused with purple, stout, semiterete, 3 mm long, with broad, angled wings and a pair of curved teeth at the apex, the foot 2.5 mm long, concave between marginal calli.

VENEZUELA: "Caracas," alt. 6000 ft., flowered in cultivation by Consul Schiller 611 in Berlin, *H. Wagener 1073* (Holotype: W); Edo. Aragua, near Colonia Tovar, 1854-5 *A. Fendler 1488* (AMES, BR, G, K, MO); near Maracay, Rancho Grande, La Toma trail, alt. 1125 m, 18 July 1977, *R. Owens & K. Gaffee s.n.* (K). Los Guayabitos, July 1954, *G. C. K. Dunsterville 216*, flowered in cultivation at El Hatillo, 25 July 1982, *C. Luer 8094* (SEL).
COLOMBIA: Dept. of Cauca: San José, San Antonio, alt. 2400-2700 m, 1 July 1922, *F. W. Pennell 7581* (AMES, K). Dept. of Norte de Santander: Sarare, between Alto del Oro and Santa Inés, alt. 1800-2200 m, 18 Oct. 1941, *J. Cuatrecasas, R. Schultes & E. Smith 12518, 12522* (AMES). Dept. of Santander: terrestrial on road embankment between Bucaramanga and Berlin, alt. 2600 m, 8 Nov. 1981, *C. Luer, J. Luer & R. Escobar 6615* (SEL); between Duitama and Virolín, alt. 2200 m, 1 June 1982, *C. Luer, R. Escobar & D. Portillo 8061* (SEL). Dept. of Nariño: between Ipiales and Victoria, alt. 3000-3200 m, 22 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2736* (SEL).
ECUADOR: Prov. of Carchi: Tulcán-Maldonado road, alt. 2700 m, 18 May 1973, *L. Holm-Nielsen, S. Jeppersen, B. Løjtnant & B. Øllgaard*



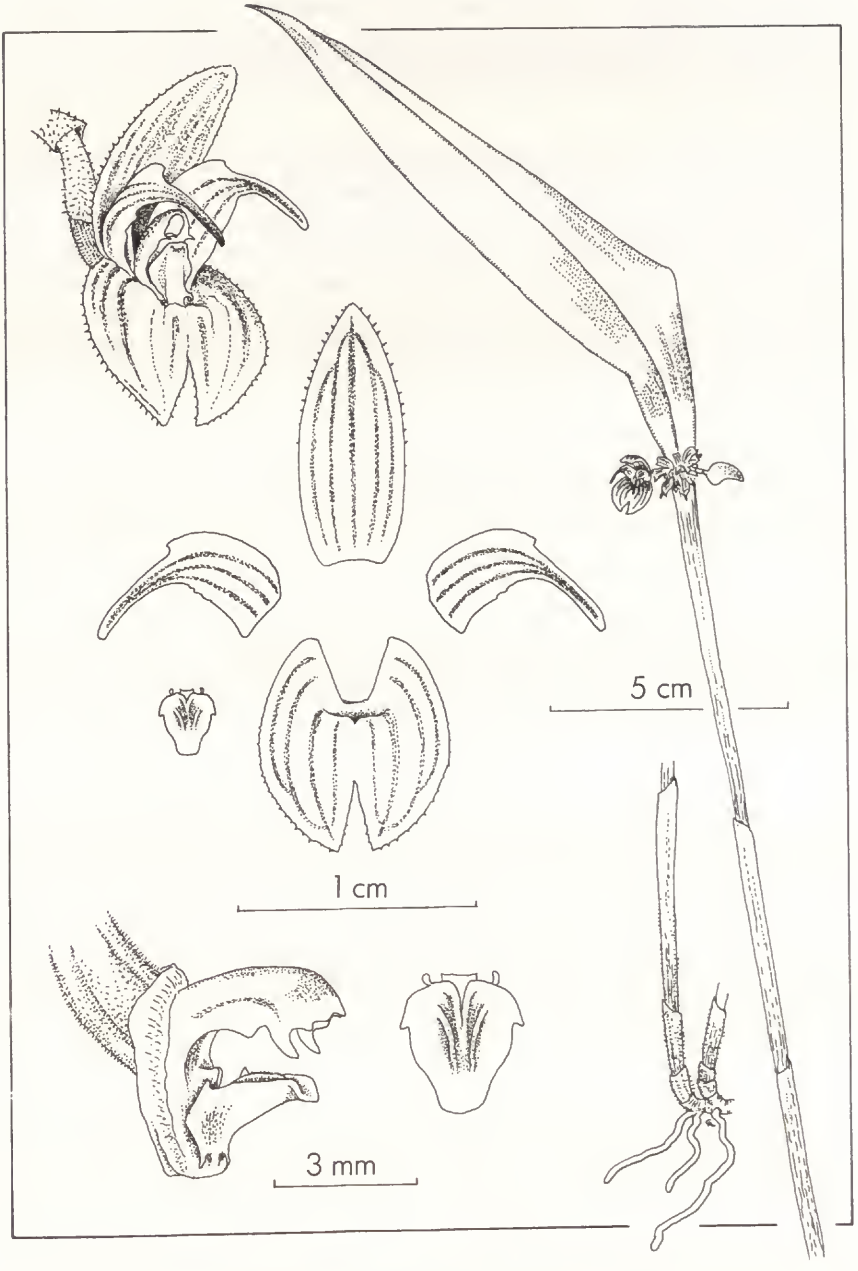


Plate 4. *Myoxanthus ceratothallus* (Reichb. f.) Luer

5691 (AAU, AMES), same area, alt. 2500 m, 26 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3391* (SEL). Prov. of Loja: Above Río Yambala east of Vilcabamba, alt. 2400 m, 19 May 1986, *D. D'Alessandro 700* (MO).
PERU: Dept. of Amazonas: Chachapoyas, Cerros Calla Calla above Leimebamba, alt. 2950 m, 28 Mar. 1984, *P. C. Hutchinson & D. Bennett 4719* (AMES, UC, USM).
BOLIVIA: Dept. of La Paz: forest along Río Sanjana, alt. 3000 m, Oct. 1911, *T. Herzog 2423* (?, type of *P. herzogii*).

This species is widely distributed through the Andes from Venezuela through Ecuador, and possibly also into Bolivia. It was first described from a collection by Wagener that flowered in Berlin. *Myoxanthus ceratothallis* is a large, vigorous species with a long ramicaul bearing a long, narrow leaf. The sepals and petals are marked with brown or purple, usually into prominent stripes. The lip, however, is more or less variable in the size of the lateral lobes. Reichenbach's sketch shows the lobes outstretched in an exaggerated position while the sketch on the specimen at Kew, apparently made from flowers of the same plant, shows the lobes much smaller. The lips of the specimens from northern Venezuela are the same as those of a specimen from Ecuador, but the lips of specimens from the Eastern Cordillera of Colombia, identical in all other respects, have smaller lateral lobes.

Myoxanthus chloë (Luer & Vásquez) Luer, Selbyana 7: 36, 1982.

Bas.: *Pleurothallis chloë* Luer & Vásquez, Phytologia 46: 362, 1980.
Ety.: From the Greek *chloë*, "grass," in allusion to the appearance of the plant.

Plant small to large, epiphytic, forming loose, pendent mats up to 2 meters long; roots slender from the bases of the ramicauls. Ramicauls slender, prolific, 1-5 in a fascicle at the apex of the previous ramicaul, 1.5-6.5 cm long, or stout at the base and up to 20 cm long, enclosed by 3-4, tubular, shortly hispid sheaths. **Leaf** erect in relationship to the ramicaul, coriaceous, narrowly elliptical, acute, 4-11 cm long, 4-6 mm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a congested fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles 1 mm long; floral bracts hispid, infundibular, 3 mm long, enclosing the pedicel, ovary and bases of the sepals; pedicel stout, 1 mm long; ovary green, glabrous, 1 mm long; **sepals** greenish white, glabrous, the dorsal sepal ovate, subacute, 9 mm long, 3.5 mm wide, 3-veined, connate to the laterals for 2 mm, the lateral sepals ovate, oblique, subacute, 8 mm long, 3.25 mm wide, each 3-veined, connate 2 mm and minutely pubescent at the base; **petals** greenish white, oblong in the lower third, contracted into a slender, terete apex, 10 mm long, 2.25 mm wide in the lower third; **lip** greenish-white, marked with purple, oblong, arcuate, 4 mm long, 1.5 mm wide, the apex rounded, denticulate-erose, the side margins each with a small, erect, acute lobe below the middle, the disc with a pair of parallel lamellae in the middle third, ending abruptly at the distal third, the base truncate, hinged on the end; **column** white, suffused with purple, stout, semiterete, 3 mm long, with broad wings above the middle, the apex toothless, the foot 3 mm long, concave.

BOLIVIA: Dept. of Cochabamba: Prov. of Chapare, epiphytic in cloud forest along the road to Tablas, alt. 2300 m, 9 Feb. 1980, *C. Luer, J. Luer & R. Vásquez 5200* (Holotype: SEL). Dept. of La Paz: Apolo, Fraz-Tamayo, alt. 5000 ft., 17 Apr. 1902, *R. S. Williams 2443* (NY).

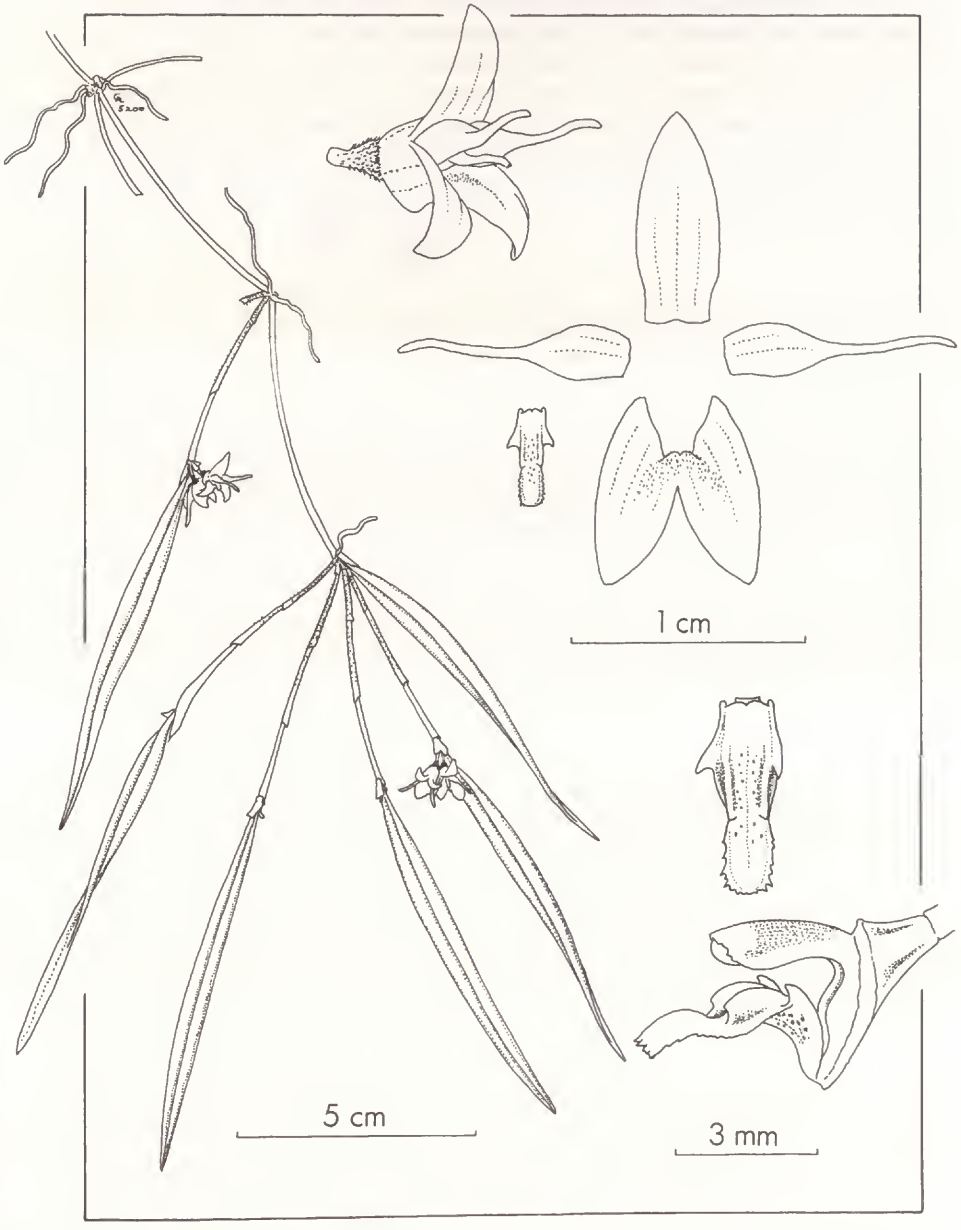


Plate 5. *Myoxanthus chloë* (Luer & Vásquez) Luer

Although individual plants with their single leaves are relatively small, the prolific, branching, pendent habit creates large, loose, tangled mats of stems and leaves that hang as long as two meters from the shaded boughs of large, mossy trees. It is endemic on the northern slopes of the Andes of Bolivia.

This species resembles the widely distributed *M. scandens*, but the flowers are larger with long, terete apices of the petals, and a narrow lip with minute, lateral lobes. It is most closely allied to the larger, more robust, sympatric *M. frutex*, from which it is distinguished by the proportionately longer petals and acute lateral lobes of the lip.

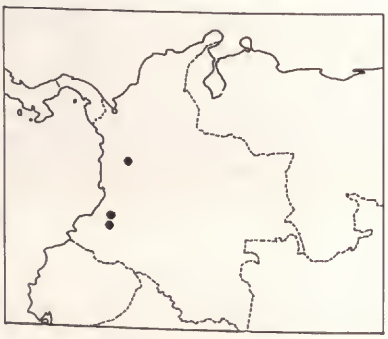
Myoxanthus cimex (Luer & Escobar) Luer, Selbyana 7: 36, 1982.

Bas.: *Pleurothallis cimex* Luer & Escobar, 14: 140, 1981.

Ety.: From the Latin *cimex*, "a bug," in allusion to the appearance of the flower.

Plant medium in size, epiphytic, very shortly repent to caespitose; roots coarse. Ramicauls stout, erect, 5-21 cm long, enclosed by 3-7 tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly ovate, acute, 9-15 cm long, 1.2-2.2 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles 1-2 mm long, enclosed by pubescent sheaths 2-3 mm long; floral bracts pubescent, 3-4 mm long; pedicels 3-4 mm long; ovary 3 mm long, minutely pubescent; **sepals** yellowish tan, mottled with red-purple in stripes, minutely pubescent externally and internally, the dorsal sepal convex, ovate, subacute, 7.5 mm long, 4 mm wide, 7-veined, the lateral sepals broadly ovate, oblique, obtuse, more or less recurved, 6 mm long, 4.5 mm wide, each 5-veined, convex at the base above the mentum with the column-foot; **petals** spotted with purple, subquadrate in the lower third with the margins obtusely angled, abruptly contracted into a narrow isthmus with revolute margins into a markedly thickened, dark purple apex, 7 mm long, 3 mm wide above the base, 1.5 mm wide at the apex; **lip** yellow, spotted and suffused with purple, oblong, revolute, 2.5-3 mm long expanded with fracturing, 2.25 mm wide, the disc with a pair of low, parallel lamellae, the base subtruncate, hinged on the end; **column** yellow, spotted with purple, stout, 3 mm long, with broad, rounded wings above the middle, the foot stout 1.5 mm long, concave.

COLOMBIA: Dept. of Risaralda: Munic. of Mistrató, between Mistrató and San Antonio de Chamí, Mampay, alt. 1700 m, collected by M. de Robledo, J. Posada & L. de Posada, flowered in cultivation by M. & O. Robledo at La Ceja, 25 Jan. 1978, *C. Luer 2321* (Holotype: JAUM; Isotype: SEL). Dept. of Cauca: highlands above Popayán, alt. 1700-2300 m, Oct.-Nov. *F. C. Lehmann 7064* (K); Popayán, *F. C. Lehmann s.n. H.K. 92, 93, 326, 328* (AMES, K); Río Palace north of Popayán, alt. 1600-1700 m, 12 July 1922, *F. W. Pennell & E. P. Killip 8273* (AMES).



This species occurs in the southern part of the Western Cordillera of Colombia. It seems somewhat intermediate among *M. hystrix, M. melittanthus* and *M. reymondii*, but *M. cimex* is distinguished by the caespitose habit; sepals minutely pubescent externally and internally; petals markedly clavate similar to those of *M. reymondii*; and a lobeless lip similar to that of *M. hystrix* and *M. melittanthus*. The columns of all three species are similar. The possibility of *M. cimex* being a natural hybrid between *M. hystrix* or *M. melittanthus* and *M. reymondii* should be considered. It is found within the extensive range of *M. reymondii*, and near localities where both *M. hystrix* and *M. melittanthus* have been found.

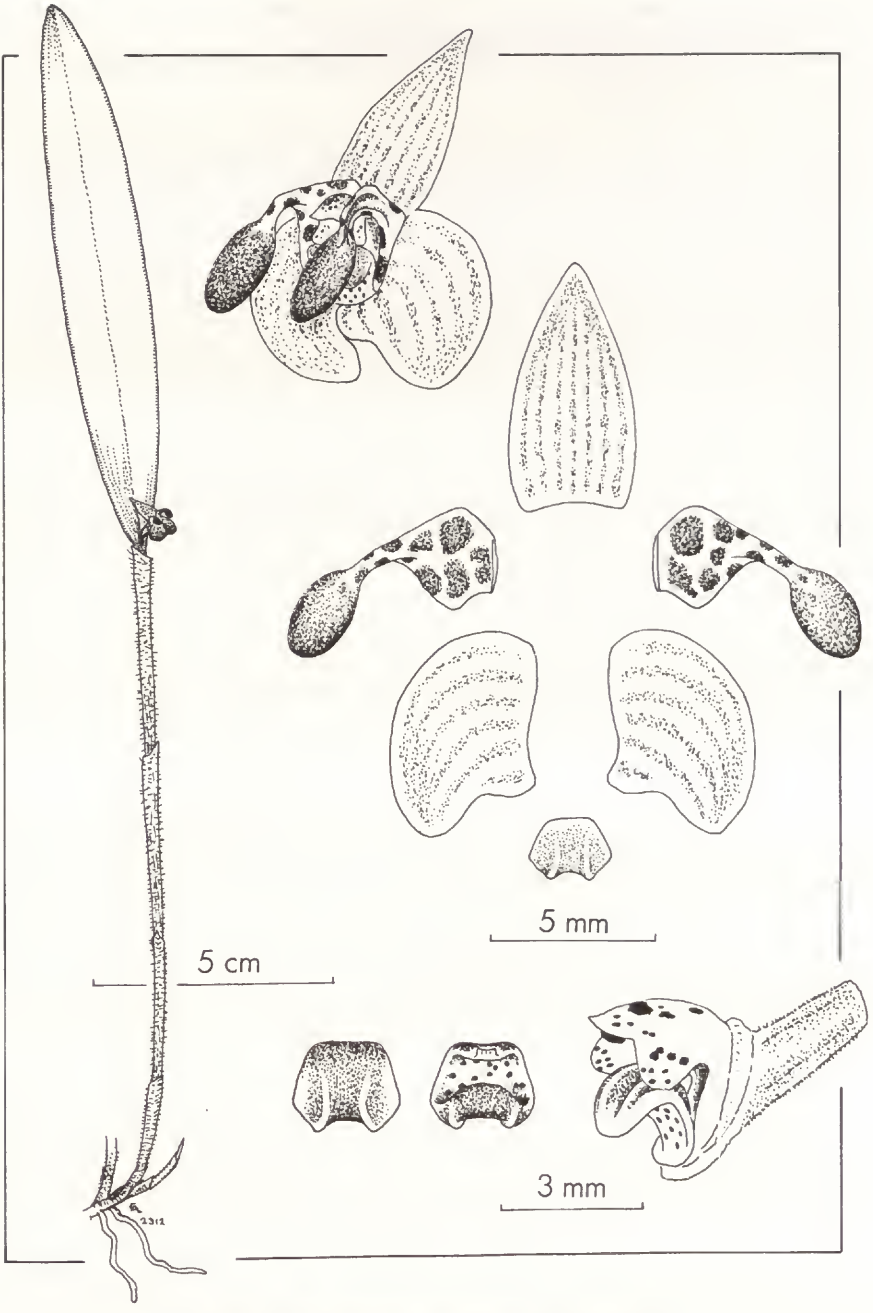


Plate 6. *Myoxanthus cimex* Luer & Escobar

Myoxanthus colothrix (Luer) Luer, Selbyana 7: 36, 1982.

Bas.: *Pleurothallis colothrix* Luer, Phytologia 49: 202, 1981.

Ety.: From the Greek *colothrix*, "short-haired," in reference to the short pubescence of the bracts, ovaries and sepals.

Plant medium in size, epiphytic, distinctly repent, the rhizome stout, up to 30 cm long, 0.5-2 cm long between ramicauls, enclosed by densely pubescent sheaths; roots slender from along the rhizome. Ramicauls slender, erect, 6-20 cm long, enclosed by 4-5 tubular sheaths with transversely arranged, digitated, scaly trichomes. **Leaf** erect, coriaceous, narrowly elliptical-ovate, acute, 10-20 cm long, 1-2.7 cm wide, narrowly cuneate below into the conduplicate, subpetiolate base. **Inflorescence** a congested, successively flowered fascicle of single flowers, produced 1-3 simultaneously, at the apex of the ramicaul, the peduncles 2-5 mm long, with equally long, pubescent bracts; floral bracts red-pubescent, infundibular, 3-4 mm long; pedicel 2-4 mm long, red-pubescent; ovary 1.5 mm long, cellular-glandular; **sepals** translucent yellow-white, sparsely short-pubescent externally, the dorsal sepal linear-ovate, obtuse, 7-10 mm long, 2-2.25 mm wide, 3-veined, free from the laterals, the lateral sepals linear-ovate, slightly oblique, narrowly obtuse, 7-9.5 mm long, 1.75-2 mm wide, each 3-veined, free from each other; **petals** yellow-white, ovate in the lower third, contracted with revolute margins into a slender, acute apex, 6.5-9 mm long, 1.5 mm wide in the lower third; **lip** yellow-white, oblong-subpandurate, 2.5 mm long, 1.25 mm wide, slightly narrowed near the middle, the apex obtuse, convex and shortly decurved, the side margins thin and erect below the middle, the disc thickened from the base to near the middle where it becomes a pair of parallel lamellae in the middle third, the base subtruncate, hinged on the end; **column** greenish white, stout, semiterete, with broad wings above the middle, shortly and obtusely toothed at the apex, 2 mm long, the foot stout, 1 mm long, concave.

ECUADOR: Prov. of Morona-Santiago: epiphytic in cloud forest east of Paute, alt. 1700 m, 10 July 1977, *C. Luer, J. Luer, G. Luer & A. Andreetta 5991* (Holotype: SEL).
PANAMA: Prov. of Chiriquí: Llanos del Volcán, epiphytic in scrub vegetation, alt. 1000 m, Sept. 1976, *C. Luer & H. Butcher 1259* (SEL).
COSTA RICA: Prov. of Puntarenas: Buenos Aires Olán, terrestrial between Sipar and Olán, alt. 1700 m, 21 Sept. 1989, *A. Chacón 410* (CR, MO).

This species occurs uncommonly in Central America with a disjunct population in southeastern Ecuador. It is the Central American counterpart of the frequent, widely distributed and variable *M. affinis-exasperatus*-complex of South America. It is distinguished by the medium-sized, shortly but distinctly repent habit; a fascicle of a few, shortly pubescent flowers with narrow sepals and subulate petals; a ligulate lip with a low callus that occupies the basal half; and a stout column with a small pair of apical teeth. The column seems about midway between those of *M. affinis* and *M. exasperatus*.

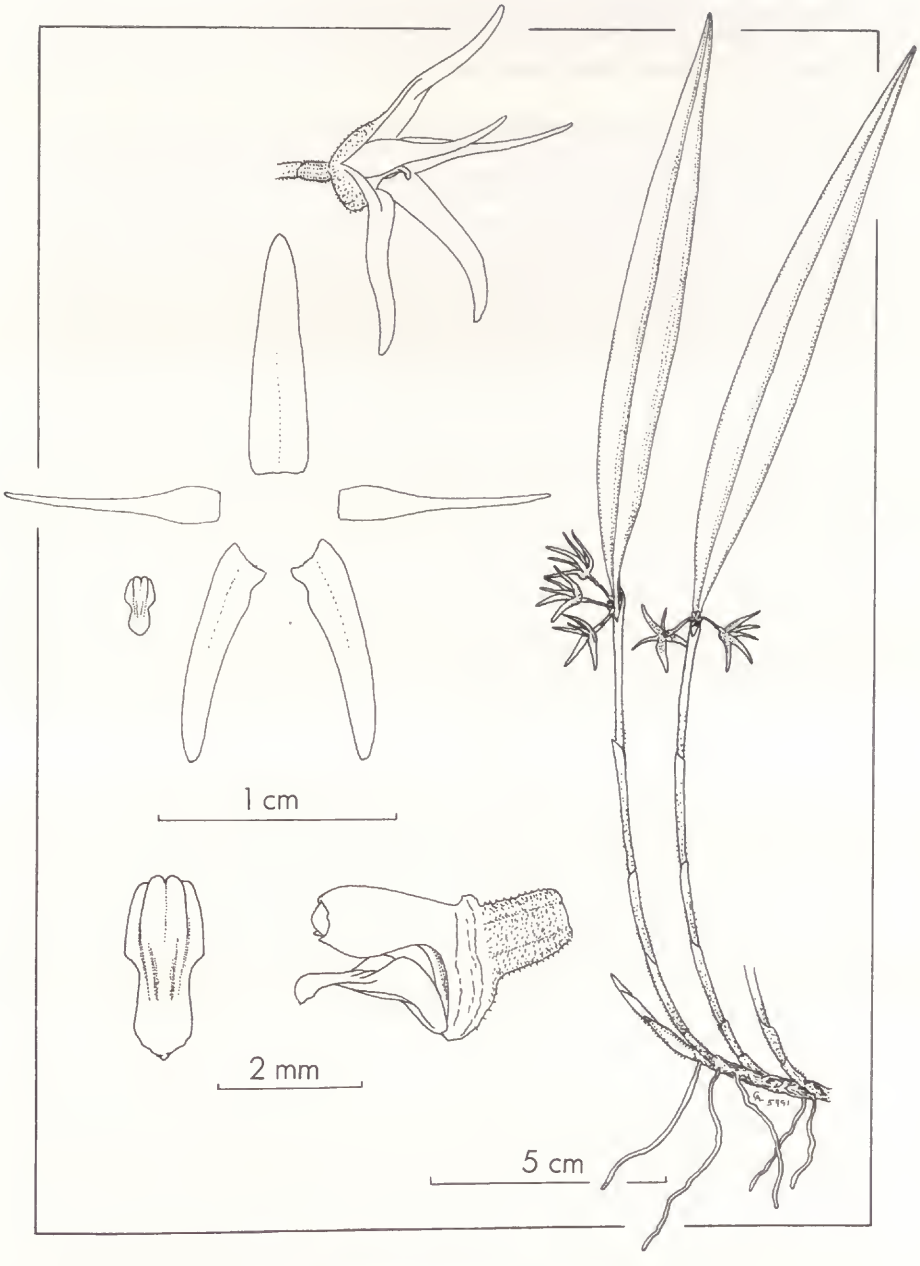


Plate 7. *Myoxanthus colothrix* (Luer) Luer

17112

Myoxanthus dasyllis Luer & Hirtz, sp. nov.

Ety.: From the Greek *dasyllis*, "a bear," referring to the dense pubescence of the floral parts and denticulate carinae of the lip.

Species haec *Myoxantho affiniti* (Lindley) Luer similis, sed pedunculis brevissimis, et labelli carinis denticulatis differt.

Plant medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 15-60 cm long, enclosed by 5-8 long, tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly ovate, acute, 12-23 cm long, 2-5 cm wide, cuneate below into the subpetiolate base ca. 1 cm long. **Inflorescence** a congested fascicle of several to many, simultaneous, single flowers, at the apex of the ramicaul, the peduncles 1-3 mm long; floral bracts infundibular, red-spiculate, 2-4 mm long, enclosing pedicel; pedicel stout, 3-4 mm long; ovary densely red-pubescent, 1 mm long; **sepals** yellow-green, more or less lightly suffused with purple, red-spiculate externally, capitate cellular-glandular within, the dorsal sepal narrowly ovate, obtuse, 8-10 mm long, 3 mm wide, the lateral sepals connate 1.5 mm at the base, oblong-ovate, oblique, obtuse, 8-9 mm long, 2-2.5 mm wide; **petals** white and ovate in the lower third with minutely erose margins, light yellow, thickened and linear above, cellular-capitate, obtuse, 7.5-10 mm long, 2 mm wide above the base, 1 mm wide above the middle; **lip** white with purple margins and carinae, obovate-ligulate, obtuse, 2-2.5 mm long, 1-1.25 mm wide, the margins minutely denticulate, elevated below the middle, the disc with a low pair of longitudinal, denticulate carinae, the base truncate with low, rounded membranous lobules, hinged on the end; **column** yellow-white, lightly marked with red, stout, semiterete, 2 mm long, 1 mm wide, irregular at the apex with a pair of teeth, the foot stout, concave.

ECUADOR: Prov. of Morona Santiago: Cordillera del Cutucú, between Mendez and Morona, alt. 950 m, 17 Jan. 1989, *C. Luer, J. Luer, P. Jesup, A. Jesup, A. Hirtz & S. Ortega 13971* (Holotype: MO); Cola de San Pablo above the Paute dam site, alt. 1750 m, 17 Feb. 1977, *J. D. Boeke & H. Loyola 1061* (NY); north of Macas, alt. 1050 m, 15 Jan. 1989, *C. Luer, J. Luer, P. Jesup, A. Jesup, A. Hirtz & S. Ortega 13911* (MO). Prov. of Cotopaxi: Quevedo-Latacunga road, citrus plantation, alt. 700 m, 5 Apr. 1973, *L. Holm-Nielsen, S. Jeppersen, B. Løjtnant & B. Øllgaard 2971* (AAU, AMES). Prov. of Pastaza: forests around Puyo, alt. 1000 m, July 1975, *C. Luer, G. Luer & S. Wilhelm 482* (SEL); flowered in cultivation 29 Dec. 1980, *C. Luer 5608* (SEL). Prov. of Zamora-Chinchipe: Loja-Zamora road, alt. 1800 m, 21 Apr. 1973, *Holm-Nielsen, S. Jeppersen, B. Løjtnant & B. Øllgaard 4120* (AAU, AMES).

This species occurs frequently in eastern Ecuador. The ramicauls are long and stout with scurfy sheaths as in the allied species, and long, narrowly ovate leaves, the length and width varying among the populations. The species is distinguished by the densely red-spiculate floral bracts, ovary and sepals of flowers that are borne by short peduncles usually less than three millimeters long. Several to many flowers are produced simultaneously in a fascicle. The sepals are obtuse and pubescent; the petals are thickened and microscopically erose or cellular-capitate; the lip is ligulate and denticulate with a pair of denticulate carinae; and the column is terminated by a distinct pair of teeth.

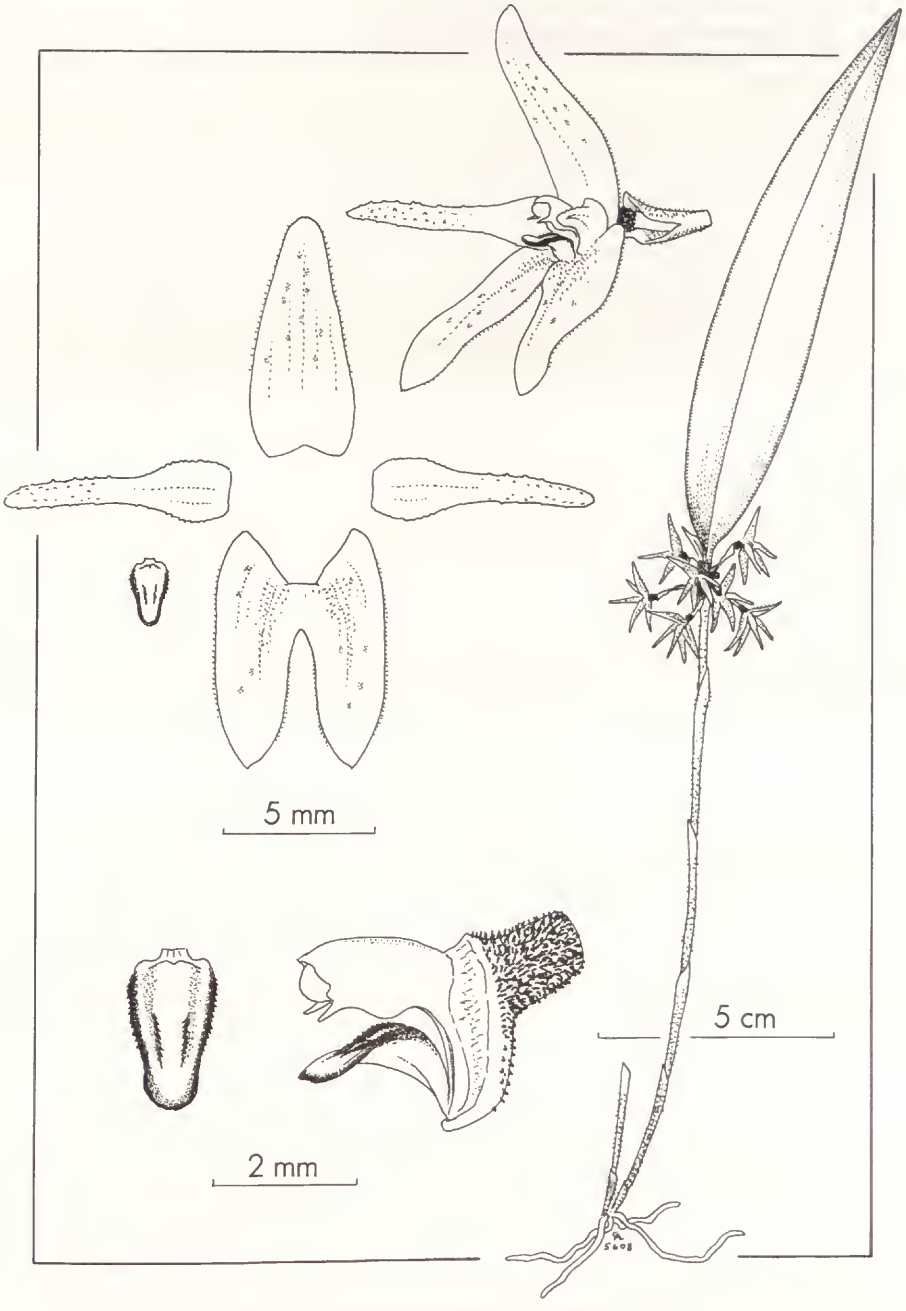


Plate 8. *Myoxanthus dasyllis* Luer & Hirtz

Myoxanthus ephelis (Luer) Luer, Selbyana 7: 36, 1982.

Bas.: *Pleurothallis ephelis* Luer, Selbyana 1: 416, 1976.

Ety.: From the Greek *ephelis*, "a freckle," in reference to the flowers lightly flecked with red or brown.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 6-18 cm long, enclosed by 5-6 reddish purple, tubular, hispid sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, 5-9 cm long, 6-9 mm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, produced 1-3 simultaneously, at the apex of the ramicaul, the peduncles 2-3 mm long; floral bracts red-pubescent, 2-3 mm long; pedicel 2 mm long; ovary 1 mm long; **sepals** translucent light pinkish brown, flecked with brown, glabrous, the dorsal sepal ovate, narrowly obtuse, 5 mm long, 2 mm wide, 3-veined, free from the laterals, the lateral sepals ovate, slightly oblique, narrowly obtuse, 4 mm long, 2 mm wide, each 3-veined, connate at the base to for a small mentum; **petals** translucent yellow-green with reddish spots, ovate in the lower half with irregular margins, contracted with revolute margins into a thickened, linear apex, acute, 5 mm long, 2 mm wide in the lower half; **lip** rose-red, ovate-trilobed, 3 mm long, 2.5 mm wide expanded, the anterior lobe obtuse, denticulate-erose, the lateral lobes erect, semicircular, erose on the anterior margins, the disc with a longitudinal pair of lamellae that meet on the middle lobe, diverge between the lateral lobes, and meet again at the base, the base subtruncate, hinged on the end; **column** rose, stout, semiterete, with broad wings above the middle, with a pair of teeth at the apex, 2.5 mm long, the foot stout, 2 mm long, concave, with a pair of rounded calli at the base of the foot.

ECUADOR: Prov. of Pastaza: epiphytic in tall forest 20 Km east of Puyo, alt. 1000 m, 28 July 1975, *C. Luer, G. Luer & S. Wilhelm 479* (Holotype: SEL).

This species, known only from the original collection, is apparently uncommon in eastern Ecuador. It is distinguished by the medium size; the caespitose habit; a fascicle of a few, red-flecked flowers with blunt, ovate sepals and subulate petals; and a three-lobed lip with a large, lunate lateral lobes and a pair of central lamellae separated medially by a channel.

Myoxanthus epibator Luer & Escobar, sp. nov.

Ety.: From the Greek *epibator*, "a climber," referring to the habit.

Species haec *Myoxantho scandenti* (Ames) Luer affinis, sed habitu majore et labelli lobis lateralibus magnis uncinatis differt.

Plant medium in size, epiphytic, long-scandent, up to 1 meter or more long; roots slender from nodes. Ramicauls slender, erect, prolific, 3-18 cm or more long, enclosed by 3-9 tubular, minutely hispidulous sheaths. **Leaf** suberect, coriaceous, narrowly elliptical-ovate, acute, 4-10 cm long, 8-11 mm wide, gradually narrowed below to the subpetiolate base. **Inflorescence** a solitary flower produced singly, near the apex of the ramicaul, the peduncles 3 mm long; floral bracts tubular, pubescent, 3 mm long, enclosing pedicel; pedicel 3 mm long; ovary cellular-glandular, 1.5 mm long; **sepals** yellow-green to yellow-orange, elliptical-ovate, subacute to obtuse. the dorsal sepal 5 mm long, 3 mm wide, the lateral sepals oblique, connate at the base, 4-4.5 mm long, 2-2.5 mm wide, with a minute pubescence below the middle; **petals** translucent yellow-green, minutely erose, ovate in the lower half, narrowed in the distal half into a thickened subclavate apex, 4.5 mm long, 2-2.5 mm wide; **lip** dark purple, subovate-trilobed, 2.5 mm long, 2 mm wide expanded, the apex broadly rounded, the margins microscopically denticulate-erose,

Plate 9. *Myoxanthus ephelis* (Luer) Luer

abruptly dilated below the middle with broad, erect, uncinate lobes, the disc with a low pair of longitudinal calli from the base to above the middle, the base truncate, bilobulate, hinged on the end; **column** light greenish, stout, semiterete, 2.5 mm long, 1 mm wide, with a long pair of teeth, the foot stout, concave.

COLOMBIA: Dept. of Antioquia: without collection data, flowered in cultivation by R. Londoño near Medellín, 20 Mar. 1989, *C. Luer 14312* (Holotype: MO); without collection data, flowered in cultivation by M. & O. Robledo at La Ceja, 18 Oct. 1977, *C. Luer 2091* (SEL).

This long-scandent species resembles a small bamboo. It is closely related to *Myoxanthus scandens* from Central America and Ecuador, but vegetatively, *M. epibator* is considerably larger. Although the sepals and petals of the two species are more or less similar, the large, uncinate lateral lobes of the lip of *M. epibator* are distinctive.

8:3592

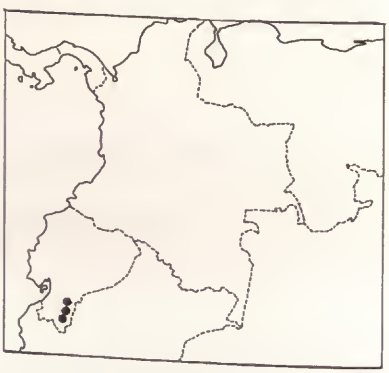
Myoxanthus eumeces (Luer) Luer, Selbyana 7: 36, 1982.

17257 Bas.: *Pleurothallis eumeces* Luer, Selbyana 5: 164, 1979.

Ety.: From the Greek *eumekes*, "very long," in reference to the proportionately long petals.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 8-30 cm long, enclosed by a series of 6-7 tubular, hispidulous sheaths. **Leaf** erect, coriaceous, narrowly ovate, acute, 7-11 cm long, 1.5-2 cm wide, cuneate below into a conduplicate petiole 5-8 mm long. **Inflorescence** a congested fascicle of single, successive flowers, at the apex of the ramicaul, with a spathe ca. 5 mm long, often shed, the peduncles 4 mm long; floral bracts echinate, 4-5 mm long; pedicel 4-5 mm long; ovary 2.5 mm long, cellular-glandular; **sepals** translucent tan, suffused with red, lightly pubescent externally, the dorsal sepal ovate, acute, contracted above the middle with revolute margins, 12 mm long, 3.75 mm wide, 5-veined, connate to the laterals for 1 mm, the apex narrowly obtuse, the lateral sepals ovate, oblique, with revolute margins, narrowly obtuse, 10.5 mm long, 3 mm wide, each 3-veined, connate 1 mm, minutely pubescent below the middle; **petals** translucent with 3 red veins, ovate in the lower third with minutely serrated margins, acute, contracted into a slender, terete apex for the distal 2 thirds, 14 mm long, 2.25 mm wide in the lower third; **lip** purple, oblong-trilobed, 3.25 mm long, 1 mm wide unspread, the apical lobe rounded, denticulate, the lateral lobes erect, near the middle, uncinate, acute, the disc with a pair of parallel lamellae above the middle, and at the base, the base subtruncate with a pair of minute lobules, hinged beneath; **column** rose, stout, semiterete, with broad wings and a pair of slender teeth at the apex, 3 mm long, the foot 2 mm long, concave.

ECUADOR: Prov. of Zamora-Chinchipe: epiphytic in cloud forest at the pass between Loja and Zamora, alt. 2700 m, 11 Feb. 1978, *C. Luer, J. Luer & M. Portilla 2530* (Holotype: SEL); same locality, 28 Sept. 1961, *C. H. Dodson & L. B. Thien 754* (MO, SEL); same locality, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10719* (MO); same locality, alt. 2800 m, 15 Mar. 1989, *J. E. Madsen 85909* (AAU); east of Yangana, alt. 2650 m, 4 Mar. 1982, *C. Luer et al. 7172* (SEL); above Valladolid, alt. 2700 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10825* (MO). Prov. of Loja: Nudo de Sabanilla, alt. 2500-2750 m, May 1985, *D. D'Alessandro 423* (MO).



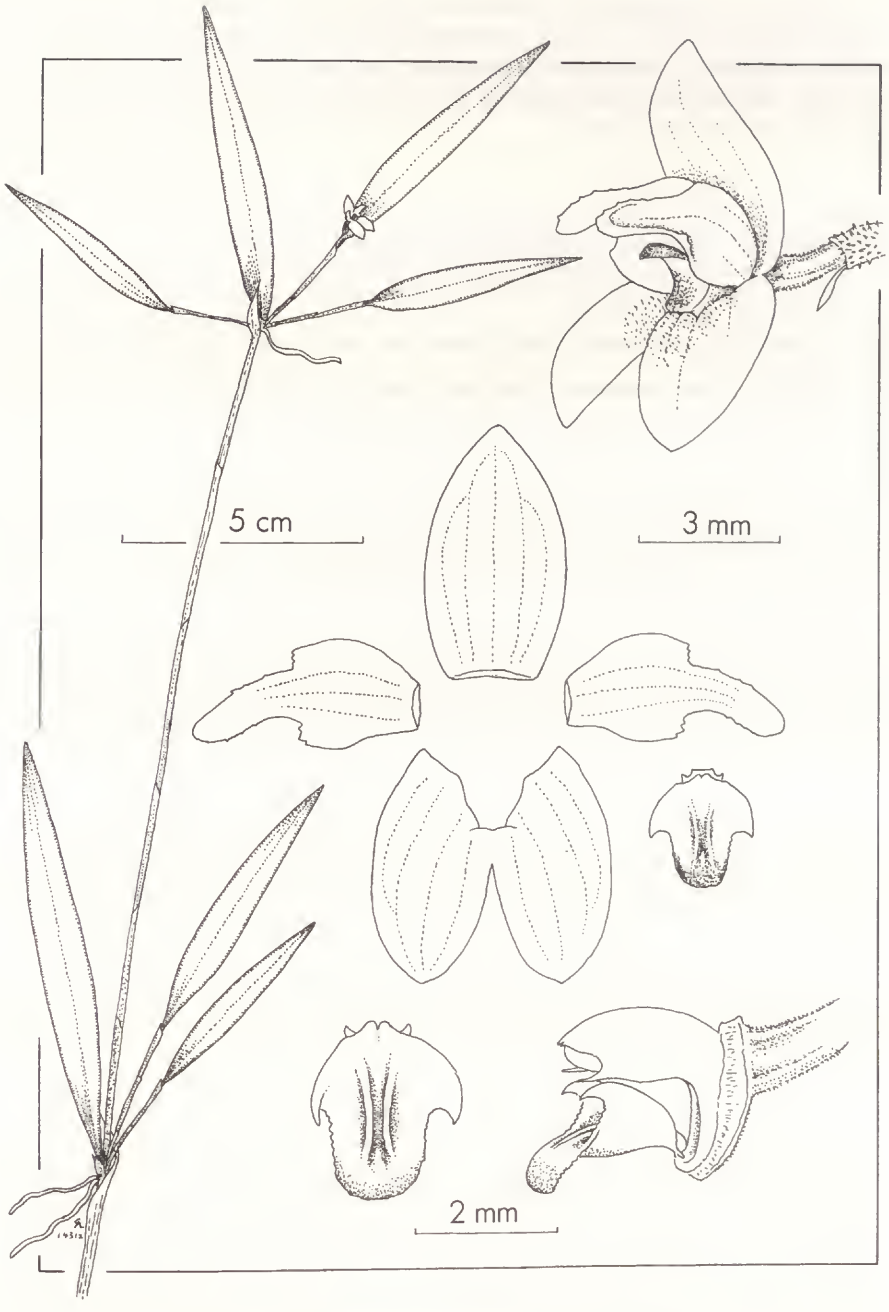


Plate 10. *Myoxanthus epibator* Luer & Escobar

This species is apparently restricted to relatively high altitudes in southeastern Ecuador where it is not uncommon. It is distinguished by the long, slender ramicauls, considerably longer than the leaves. Most diagnostic are the long, subulate petals that protrude well beyond the reddish sepals, and the lip with uncinate lateral lobes.

Myoxanthus exasperatus (Lindley) Luer, Selbyana 7: 36, 1982.

Bas.: *Pleurothallis exasperata* Lindley, Folia Orch. *Pleuroth.* 15, 1859.
Ety.: From the Latin *exasperatus*, "covered with short hard points," referring to the pubescence of the sheaths and sepals.

Syn.: *Pleurothallis pedunculatis* Lindley, Edwards' Bot. Reg. 29: Misc. 47, 1843, non Hook. 1841.
Ety.: From the Latin *pedunculatis*, "pedunculate," referring to the flowers.

Syn.: *Anathallis parahybunensis* Barb. Rodr., Gen. Sp. Orch. Pl. 2: 76, 1882.
Ety.: Named for the River Parahybuna where the species was discovered.

Syn.: *Humboldtia exasperata* (Lindley) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Humboldtia pedunculatis* (Lindley) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis macropus* Schltr., Repert. Spec. Nov. Regni Veg. 14: 131, 1915.
Ety.: From the Greek *macropous*, "a big foot," possibly referring to the ramicaul.

Syn.: *Myoxanthus parahybunensis* (Barb. Rodr.) Luer, Selbyana 7: 49, 1982.

Plant large, epiphytic, shortly repent to caespitose; roots coarse. Ramicauls stout, erect, 15-45 cm long, enclosed by 5-8 long, tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly ovate, acute, 15-25 cm long, 3 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a congested fascicle of several, single, simultaneous flowers, at the apex of the ramicaul, the peduncles minutely pubescent, 1 cm long; floral bracts infundibular, minutely pubescent, 2-3 mm long, enclosing pedicel; pedicel stout, 2-3 mm long; ovary densely pubescent, 1 mm long; **sepals** yellow-white, sparsely red-pubescent externally, the dorsal sepal narrowly ovate, acute, 11-12 mm long, 2 mm wide, the lateral sepals connate at the base, narrowly ovate, oblique, acute, 10-11 mm long, 2 mm wide; **petals** yellow-white, ovate in the lower third with minutely erose margins, semiterete and linear above, acute, 10-11 mm long, 1.5 mm wide above the base; **lip** white suffused with purple, subpandurate, 2.5 mm long, 1 mm wide, the apex subtruncate, erose, apiculate, the margins elevated below the middle, the disc with a low pair of longitudinal calli near the center, the base subtruncate, hinged on the end; **column** greenish white, stout, semiterete, 2 mm long, 1 mm wide, oblique at the apex without teeth, the foot stout, concave.

VENEZUELA: Edo. Aragua: near Colonia Továr, 1854-1856, *A. Fendler 1490* (Holotype: K, Isotype: AMES); Guatopo on Tiara road, Aug. 1955, *G. C. K. Dunsterville 129*. Edo. Bolívar: Chimantá Massif, Apácara-tepui, alt. 2200 m, 20 Jan. 1953, *J. A. Steyermark 75838, 75950* (AMES). Edo. Táchira: near Represa Dorada, alt. 600-1000 m, 10 Mar. 1981, *R. Liesner & A. Gonzáles 10328* (MO).
COLOMBIA: Dept. of Antioquia: Munic. Guatepé, Finca Montepinar, alt. 1850 m, 31 Mar. 1983, *L. Albert de Escobar & J. Folsom 3400* (MO). Dept. of Boyacá: El Humbo, alt. 3500 ft., 14 May 1933, *A. E. Lawrence 801* (AMES). Dept. of Cauca: El Tambo, primary forest at La Costa, alt. 1200 m, Apr. 1937, *K. von Sneidern 1601* (G).
ECUADOR: Prov. of S. Nicolas(?): Río Pilaton, June 1886, *A. Sodiro 30* (BR: type of *Pleurothallis macropus*). Prov. of Cotopaxi: without locality, *O. Haught 2921, 2922* (AMES). Prov. of

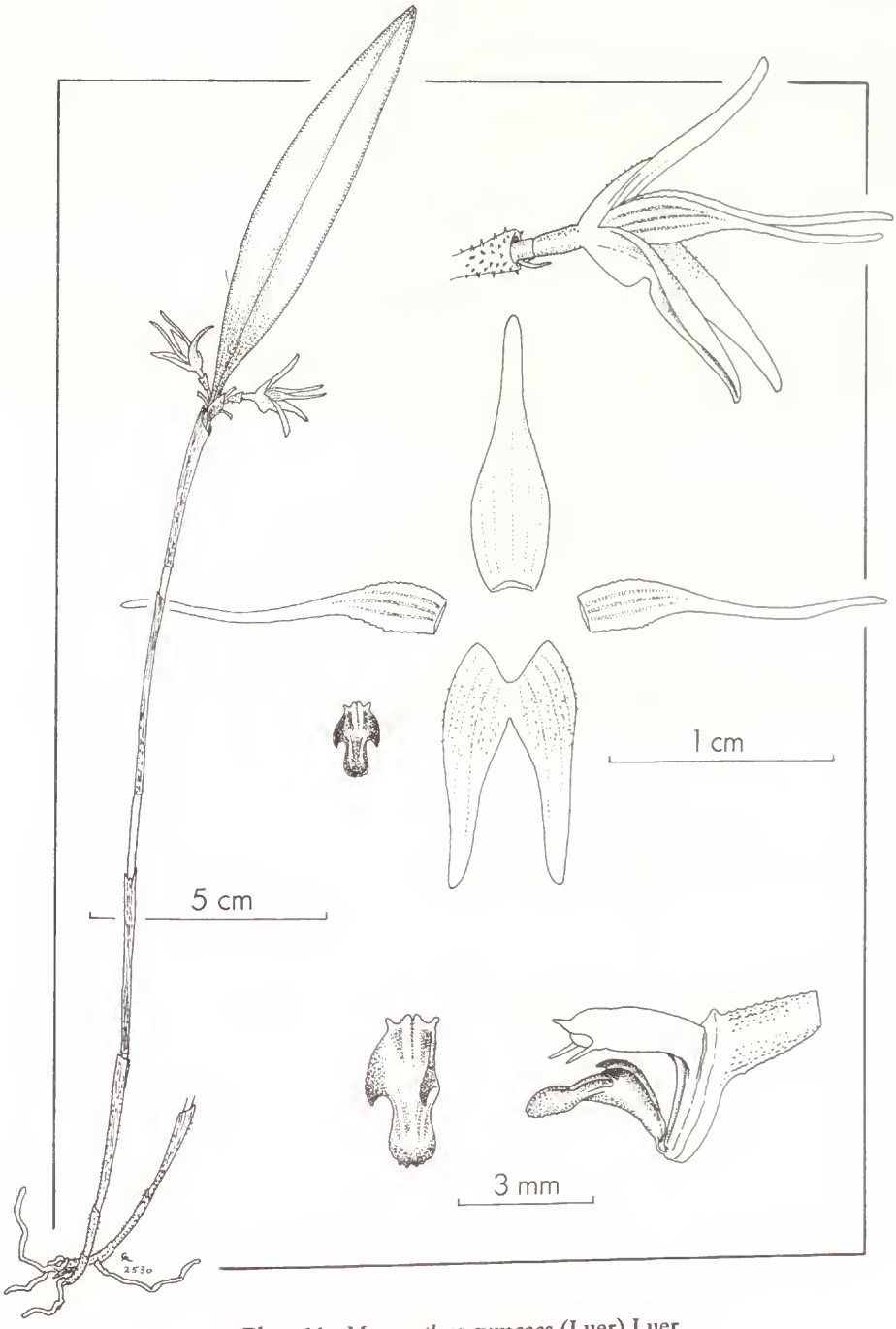


Plate 11. *Myoxanthus eumeces* (Luer) Luer

Morona-Santiago: Macas, alt. 1000 m, 18 Mar. 1926, *E. Asplund 19830* (NY, S); southeast of San Juan Bosco, alt. 1540-1600 m, 27 Jan. 1981, *A. Gentry, C. Bonifaz & J. Loor C. 30883* (MO). Prov. of Pichincha: 20 Km west of Santo Domingo, alt. 1000 m, 2 Nov. 1961, *P. C. D. Cazalet & T. D. Pennington 5260* (B, BM, K, NY, UC); old road between Quito and Santo Domingo, collected July 1975, C. Luer et al., flowered in cultivation Mar. 1981, *C. Luer 5989* (SEL). Prov. of Napo: Bermejo oil fields north of Lumbaqui, alt. 850 m, 9 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11735* (MO); above Baeza, alt. 1840 m, 30 June 1986, *C. H. Dodson & T. Dodson 16532*. Prov. of Pastaza: near Puyo, alt. 750-1000 m, Sept. 1939, *A. F. Skutch 9638* (AMES). Prov. of Tungurahua: Río Pastaza near Baños, alt. 1750 m, 15 Mar. 1939, *C. W. Penland & R. H. Summers 83* (AMES)
PERU: Dept. of Huanuco: Yanano, alt. 1800 m, in patches on humus, *Macbride 3849* (AMES).
BRAZIL: without locality, *Loddiges* (K, holotype of *P. peduncularis*). Edo. Minas Geraës: in trees along the River Parahybuna, alt. 680 m, Dec., *B. Rodrigues, s.n.* (?, holotype of *P. parahybunensis*). Edo. Paraná: epiphytic in forest near Alexandra, flowered in cultivation 20 Dec. 1914, *P. Dusén 16188* (AMES, K, NY, S); Munic. Guaratuba, Pedra Branca de Araquara, 1965, *G. Hatschbach 11729* (K); Paranagua Ponto do Sul, alt. 3-5 m, 1 June 1966, *G. Hatschbach 14412* (NY); Rio Cambara, alt. 50-200 m, 24 Oct. 1968, *G. Hatschbach 20138* (NY). Edo. Sta. Catarina, near Lagoa do Peri, 1 Oct. 1950, *R. A. Rihr 57A* (BR). Edo. Sâo Paulo: Estaçâo Biologica do Alto da Serra, 8 Oct. 1934, *F. Hoehne 32096* (AMES, NY).

This species is widely distributed through the Andes into southern Brazil. The oldest epithet for the species is *peduncularis* by Lindley, but that name had already been applied to a different species (*Pleurothallis ophiocephala*) by Hooker. *Myoxanthus exasperatus* is identified as *Pleurothallis peduncularis* in *Venezuelan Orchids Illustrated*, vol. 2.

It is reasonably safe to assume that Lindley's *P. exasperata* is synonymous with his *P. peduncularis*. His illustration of *P. peduncularis* from Brazil fits exactly Dunsterville's illustration of the same species from near Caracas, Venezuela, from whence Fendler probably collected the specimen described by Lindley as *P. exasperata*. The flower of this specimen was described as being old and without a lip.

The ramicauls are long and stout with scurfy sheaths as in many species, but the species is distinguished by the fascicle of several to many flowers borne simultaneously by peduncles about one centimeter long. The sepals and petals are long and narrow, very similar to those of *M. affinis*. The sepals of *M. exasperatus* are more or less red-spiculate externally. The lip is subpandurate (constricted above the middle) with a subtruncate, minutely erose, apiculate apex. The column is stout without teeth.

Grossly, many herbarium specimens of *M. affinis* and *M. exasperatus* are indistinguishable without hydration of flowers. This will account for any misidentifications cited in the distribution.

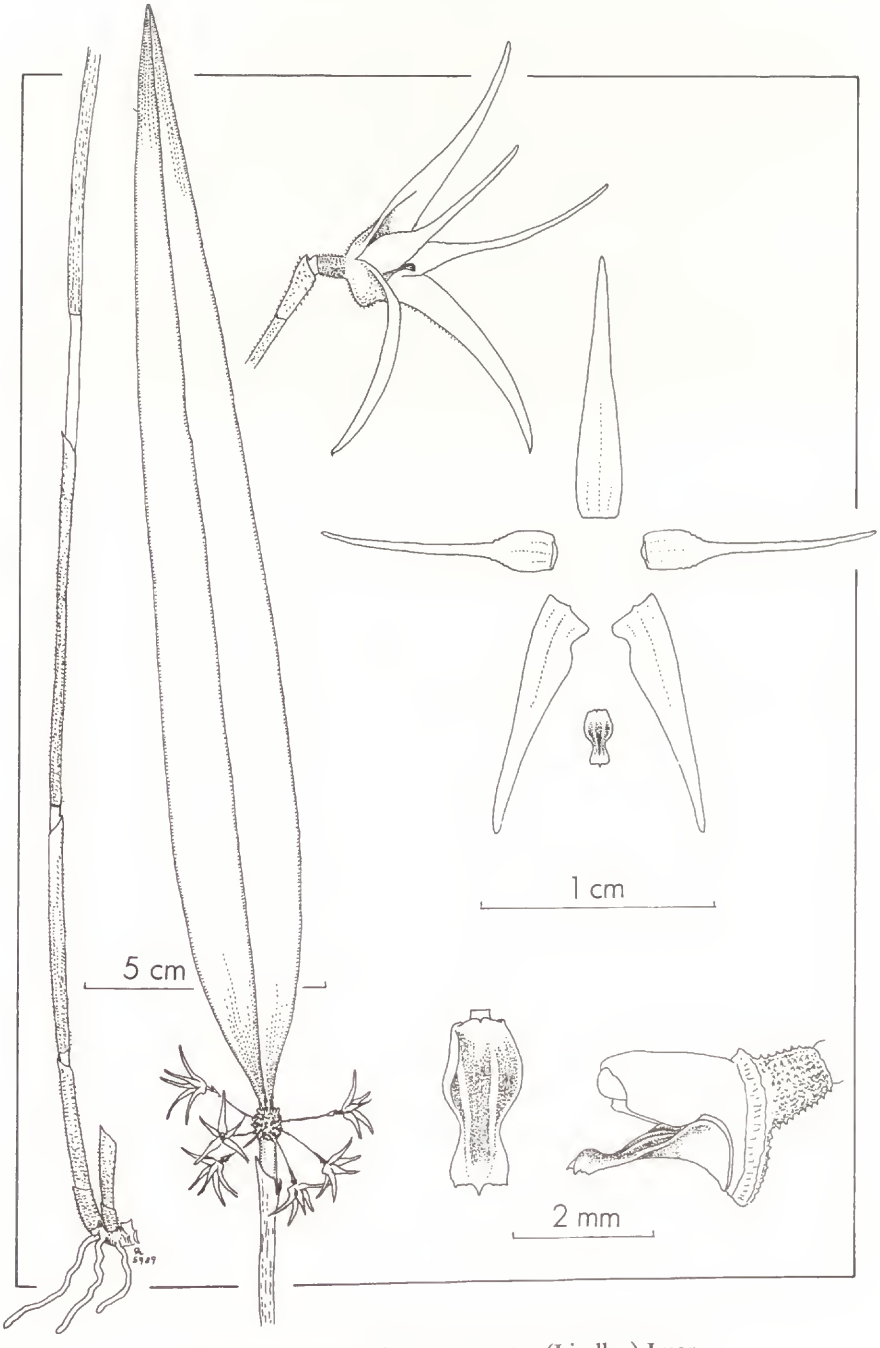


Plate 12. *Myoxanthus exasperatus* (Lindley) Luer

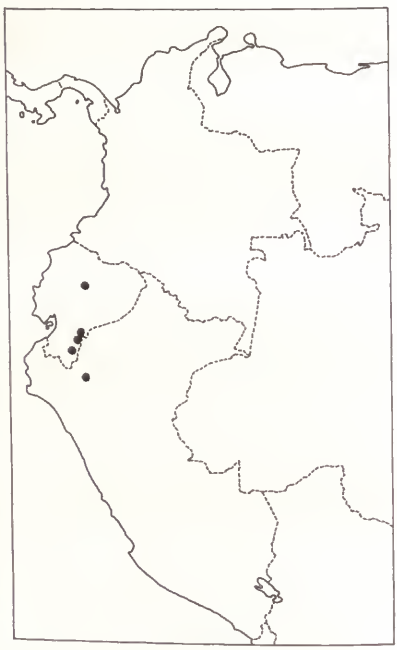
Myoxanthus fimbriatus Luer & Hirtz, sp. nov.

Ety.: From the Latin *fimbriatus*, "fimbriate," referring to the petals.

Species haec *Myoxantho scandenti* (Ames) Luer affinis, sed sepalis longioribus et petalis fimbriatis apice elongato subulato longiciliato differt.

Plant medium in size, epiphytic, long-scandent; roots slender from nodes. Ramicauls slender, erect, prolific, 3-22 cm long, enclosed by 3-9 tubular, minutely hispidulous sheaths. **Leaf** suberect, coriaceous, narrowly elliptical-ovate, acute, 4-13 cm long, 5-7 mm wide, gradually narrowed below to the subpetiolate base. **Inflorescence** a solitary flower produced singly, near the apex of the ramicaul, the peduncles 1-2 mm long; floral bracts tubular, pubescent, 5-6 mm long, enclosing pedicel and ovary; pedicel 1-2 mm long; ovary cellular-glandular, 1 mm long; **sepals** purple-brown, more or less edged in green, sparsely pubescent externally, minutely ciliate, narrowly ovate, acute. the dorsal sepal 7.5 mm long, 2.4 mm wide, the lateral sepals oblique, connate at the base, 4.5 mm long, 2 mm wide, with a fine, long pubescence below the middle; **petals** purple, ovate and fimbriate in the lower quarter, narrowed in the distal three quarters into a thick, subulate, long-ciliate apex, 7.5 mm long, 2 mm wide; **lip** dark purple, oblong-subpandurate, 2 mm long, 1 mm wide, the apex broadly obtuse, dentate, the margins minutely denticulate-erose, abruptly dilated and elevated below the middle, more or less with an erose margin with junction at the middle, the disc with a low pair of longitudinal calli from the base to above the middle, the base truncate, bilobulate, hinged on the end; **column** light greenish, stout, semiterete, 2 mm long, 1 mm wide, with a pair of teeth, the foot stout, concave.

ECUADOR: Prov. of Napo: Cotundo, alt. 1100 m, collected by A. Hirtz, flowered in cultivation in Quito, 18 Mar. 1985, *A. Hirtz 2245* (Holotype: MO), C. Luer illustr. 10652. Prov. of Zamora-Chinchipe: south of Zamora toward Zumba, Río Jamboe, alt. 1450 m, 27 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10964* (MO); same area, alt. 1500 m, 27 Jan. 1989, *S. Dalström & T. Höijer 1204* (MO); Cordillera del Condor, east of Paquisha, alt. 1450 m, 19 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11934* (MO); Cordillera del Condor, east of Mayaicu, alt. 1300 m, 20 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13501* (MO); Cordillera Nanguipa north of Nambija, alt. 1400 m, June 1991, *A. Hirtz 5514* (MO).
PERU: Dept. of Amazonas: Villa Rica, collected by C. Head, flowered in cultivation at J & L Orchids, Easton, CT., 25 Apr. 1987, *C. Luer 12814* (MO).



This long-scandent species is widely distributed in southeastern Ecuador and northern Peru. Vegetatively it is similar to *Myoxanthus scandens*, which is also frequent and widely distributed in southeastern Ecuador, but *M. fimbriatus* is usually more robust with larger, longer leaves. Florally, *M. fimbriatus* is easily distinguished by the long, narrow sepals, and fimbriate petals terminated by a long-ciliate, long-subulate apex.

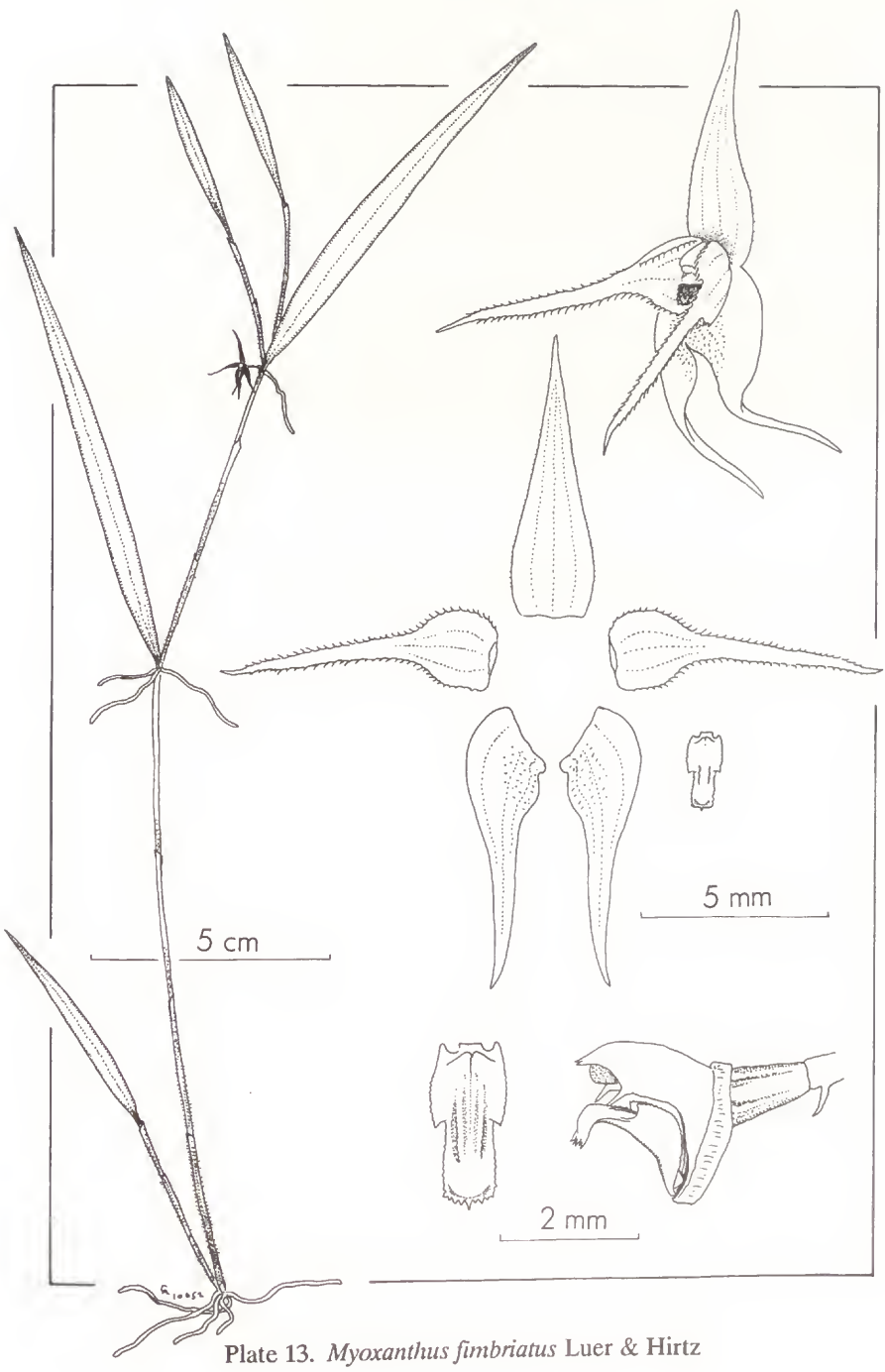


Plate 13. *Myoxanthus fimbriatus* Luer & Hirtz

Myoxanthus frutex (Schltr.) Luer, Selbyana 7: 36, 1982.

Bas.: *Pleurothallis frutex* Schltr., Repert. Spec. Nov. Regni Veg. 10: 454, 1912.

Ety.: From the Latin *frutex*, "a shrub," in allusion to the appearance of the plant.

Plant medium to large in size, terrestrial to epiphytic, forming loose, scandent or pendent masses up to a meter across; roots, slender from the bases of the ramicauls. Ramicauls slender, prolific, up to 14 in a fascicle at the apex of the previous ramicaul, 3-8 cm long, or stout at the base and up to 30 cm long, enclosed by 3-4, tubular, shortly hispid sheaths. **Leaf** erect in relationship to the ramicaul, coriaceous, narrowly elliptical, acute, 5-13 cm long, 0.9-1.1 cm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a fascicle of successive, single flowers, 1 to 5 flowers produced simultaneously, at the apex of the ramicaul, the peduncles less than 1 mm long; floral bracts hispid, infundibular, 4 mm long, 5 mm broad expanded, enclosing the pedicel, ovary and bases of the sepals; pedicel stout, 2 mm long; ovary dark green, glabrous, 1.5 mm long; **sepals** yellow to yellow-green, glabrous, the dorsal sepal ovate, acute, 13 mm long, 4 mm wide, 3- to 5-veined, connate to the laterals for 1 mm, the lateral sepals ovate, oblique, acute, 11 mm long, 3 mm wide, each 3- to 4-veined, connate 1 mm and minutely pubescent at the base; **petals** yellowish, ovate in the lower third, contracted into a slender, terete apex, 11 mm long, 2.75 mm wide in the lower third; **lip** yellow, oblong-subpandurate, arcuate, 4 mm long, 1.5 mm wide, the apex dilated, rounded, denticulate-erose, apiculate, the side margins obscurely angled on the lower third, the disc with a tall pair of parallel lamellae from the base to the upper third, the base subtruncate, hinged on the end; **column** greenish white, stout, semiterete, 2.5 mm long, with broad wings above the middle and a pair of slender processes at the apex, the foot 2.5 mm long, concave.

BOLIVIA: Dept. of La Paz: Prov. of Sud Yungas, terrestrial in humus-rich rocky soil, near Unduavi, alt. 3200 m, Nov. 1910, *O. Buchtien 2613* (Holotype: K, Isotype: AMES); same area, Alto Pampa pass, alt. 2550 m, 28 Feb. 1981, *C. Luer, J. Luer & R. Vásquez 5806* (SEL); Larecaja, above Sorata, *E. Günther 32* (HBG); Murillo, along Río Zongo, alt. 2600 m, 3 Jan 1988, *J. C. Solomon 17750* (K); same area, alt. 2650 m, 30 Jan. 1988, *C. Luer, J. Luer, R. Vásquez, T. & D. Mulder & A. Vogel 12967* (MO); Cargadira, alt. 8000 ft., 29 July 1902, *R. S. Williams 1633* (AMES, NY). Dept. of Cochabamba: Chapare, forest along the road between Cochabamba and Villa Tunari, alt. 2500 m, 24 Jan. 1980, *C. Luer, J. Luer & R. Vásquez 4942* (SEL); same area, alt. 1900 m, 18 Jan. 1988, *C. Luer, J. Luer, R. Vásquez, T. & D. Mulder & A. Vogel 12870* (MO).

PERU: Dept. of Cuzco: Convención, Pintobamba, alt. 2500 m, 4 Mar. 1943, *C. Vargas 3289* (AMES); Paucartambo, Pillahuata, alt. 2800 m, 25 Jan. 1945, *C. Vargas 4954* (AMES); alt. 2600 m, 25 Nov. 1965, *C. Vargas 16985* (AMES); Huaycani, alt. 9,000-10,000 ft., May 1866, *R. Pearce s.n.* (K).

This robust species often grows into great, shrub-like masses of intertwining and branching stems that often grow among other shrubs where it is well camouflaged. Less commonly it is found in trees. It occurs relatively frequently from southern Peru into central Bolivia.

The yellow flowers are characterized by protruding, subulate petals and an arcuate lip. The tall pair of lamellae fits between a pair of long processes at the apex of the column.

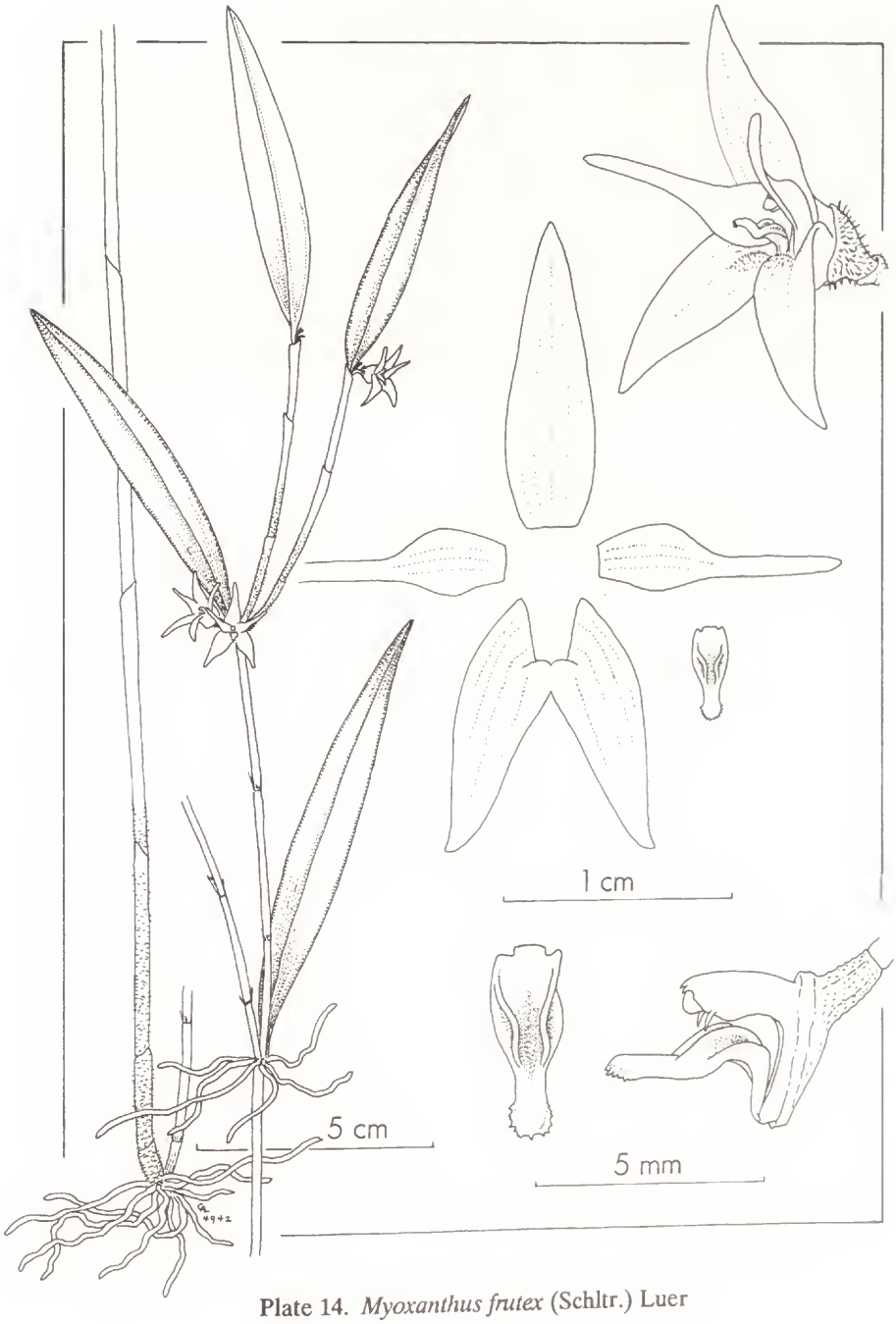


Plate 14. *Myoxanthus frutex* (Schltr.) Luer

Myoxanthus georgei (Luer) Luer, Selbyana 7: 43, 1982.

Bas.: *Pleurothallis georgei* Luer, Selbyana 1: 246, 1975.

Ety.: Named in honor of George Luer who first discovered this species.

Plant medium to large in size, epiphytic, caespitose; roots slender. Ramicauls slender to stout, erect, 7-40 cm long, enclosed by 4-8 tubular, long-hispidulous sheaths. **Leaf** erect, coriaceous, narrowly ovate, acute, 5-10 cm long, 1-2 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles 2-3 mm long, enclosed by sheaths 3-4 mm long; floral bracts pubescent, 6 mm long; pedicels 7 mm long, pubescent; ovary 2 mm long, red-pubescent; **sepals** deep purple, glabrous, the dorsal sepal ovate, acute, 5 mm long, 2.5 mm wide, 5-veined, the lateral sepals oblong, oblique, acute, 4 mm long, 1.5 mm wide, each 3-veined, convex and pubescent at the base above the mentum with the column-foot; **petals** ovate in the lower half, narrowed from the middle into an acute apex, 4 mm long, 1.5 mm wide in the lower half; **lip** deep purple, ovate-trilobed, 2.5 mm long, 2 mm wide expanded, the apex obtuse, apiculate, the lateral lobes broadly rounded, erect, acutely angled near the middle, the disc with a pair of parallel lamellae on the middle third, meeting at the base as a pair of calli, the base subtruncate, with a pair of minute lobules, hinged on the end; **column** rose, stout, semiterete, 2 mm long, with broad wings and a pair of short teeth at the apex, the foot 1.5 mm long, concave.

ECUADOR: Prov. of Morona Santiago: epiphytic in felled trees, 30 Km south of Gualaquiza, alt. 500 m, 6 Aug. 1975, *C. Luer, G. Luer & S. Wilhelm 451* (Holotype: SEL); Cordillera del Cutucú, cloud forest east of Guismé, alt. 950 m, 18 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11888* (MO). Prov. of Zamora-Chinchipe: Cordillera del Condor, cloud forest east of Mayaicu, alt. 1300 m, 20 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13507* (MO); Cordillera del Condor, swampy forest west of Paquisha, alt. 850 m, 19 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11921* (MO); forest south of Zamora toward Zumba, Río Jamboe, alt. 1450 m, 27 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10968* (MO).

This species is occurs frequently in the forests of southeastern Ecuador at relatively low altitudes. It is distinguished by the caespitose habit, ramicauls clad in long-hispidulous sheaths and longer than the leaves, and single purple flowers with subulate petals and a three-lobed lip.

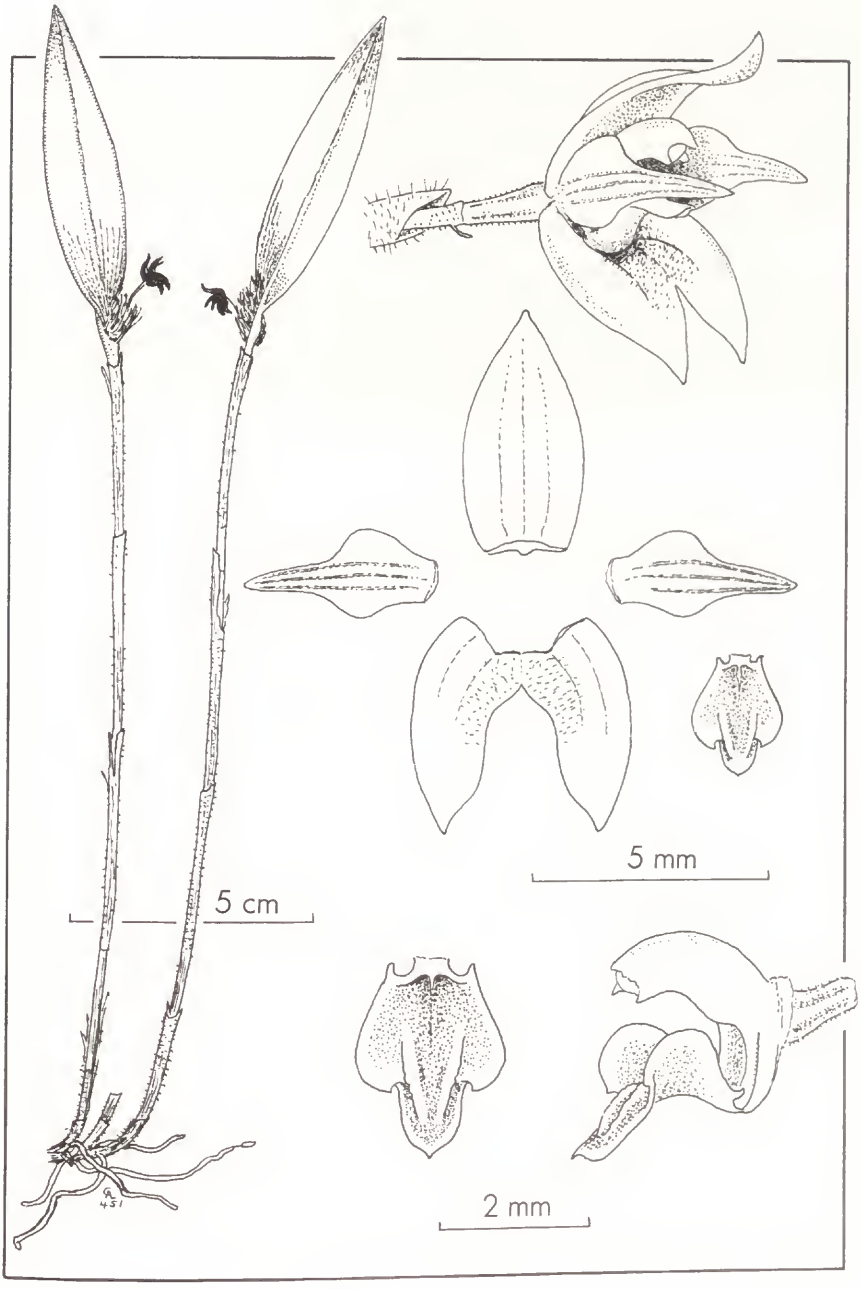


Plate 15. *Myoxanthus georgei* (Luer) Luer

Myoxanthus gorgon Luer, Phytologia 54: 386, 1983.

Ety.: Named for a gorgon of Greek mythology in reference to inflorescence resembling a head of snaky locks.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 30-40 cm tall, enclosed by 5-7 tubular, hispidulous sheaths. **Leaf** erect, rigidly coriaceous, narrowly elliptical-ovate, acute, 20-30 cm long, 3.5-5 cm wide, cuneate below into the sessile base. **Inflorescence** a congested fascicle of several, simultaneous, single flowers, at the apex of the ramicaul, the peduncles 1-2 mm long, shortly pubescent; floral bracts inflated, infundibular, coarsely long-pubescent, 5 mm long, 9 mm wide expanded, enclosing the pedicel, ovary and the bases of the sepals; pedicel stout, 0.5 mm long; ovary minutely pubescent, 1 mm long; **sepals** yellow, glabrous, with sparsely erose margins, the dorsal sepal elliptical-ovate, obtuse, 15 mm long, 4.5 mm wide, 5-veined, the lateral sepals lightly adherent nearly to the apex to form an oblong-ovate synsepal, 12 mm long, 7 mm wide, each 6-veined, rounded at the bifid apex; **petals** yellow, glabrous, elliptical in the lower third with denticulate margins, thick, linear and terete in the distal 2 thirds, 15 mm long, 3.5 mm wide above the base; **lip** white, marked with purple, oblong-ovate with the apex rounded, 2.5 mm long, 1.25 mm wide, the margins elevated below the middle, the disc with a low callus at the base and a pair of low, longitudinal calli near the center, the base truncate, hinged on the end; **column** light-green, stout, broadly winged, 2 mm long, 1.5 mm wide, with a pair of teeth at the apex, the foot stout, concave.

ECUADOR: Prov. of Morona-Santiago: epiphytic in the forest north of Gualaquiza, alt. 1500 m, Mar. 1982, collected by C. Luer & A. Andreetta, flowered in cultivation 14 Mar. 1983, *C. Luer 8693* (Holotype: SEL). Prov. of Pastaza: along Río Pastaza near Mera, alt. 1000 m, Feb. 1985, *A. Hirtz 2222* (MO). Without locality, flowered in cultivation at Kew, 23 Feb. 1987, *Hodgson 281* (K).

This large species occurs locally in the mountainous forests of southeastern Ecuador. It is most closely related to *M. monophyllus*, but *M. gorgon* is distinguished by the yellow flowers, much shorter peduncles, much shorter and broader sepals, and much shorter, thicker petals. In both species the floral bract encloses the pedicel, ovary and the bases of the sepals.

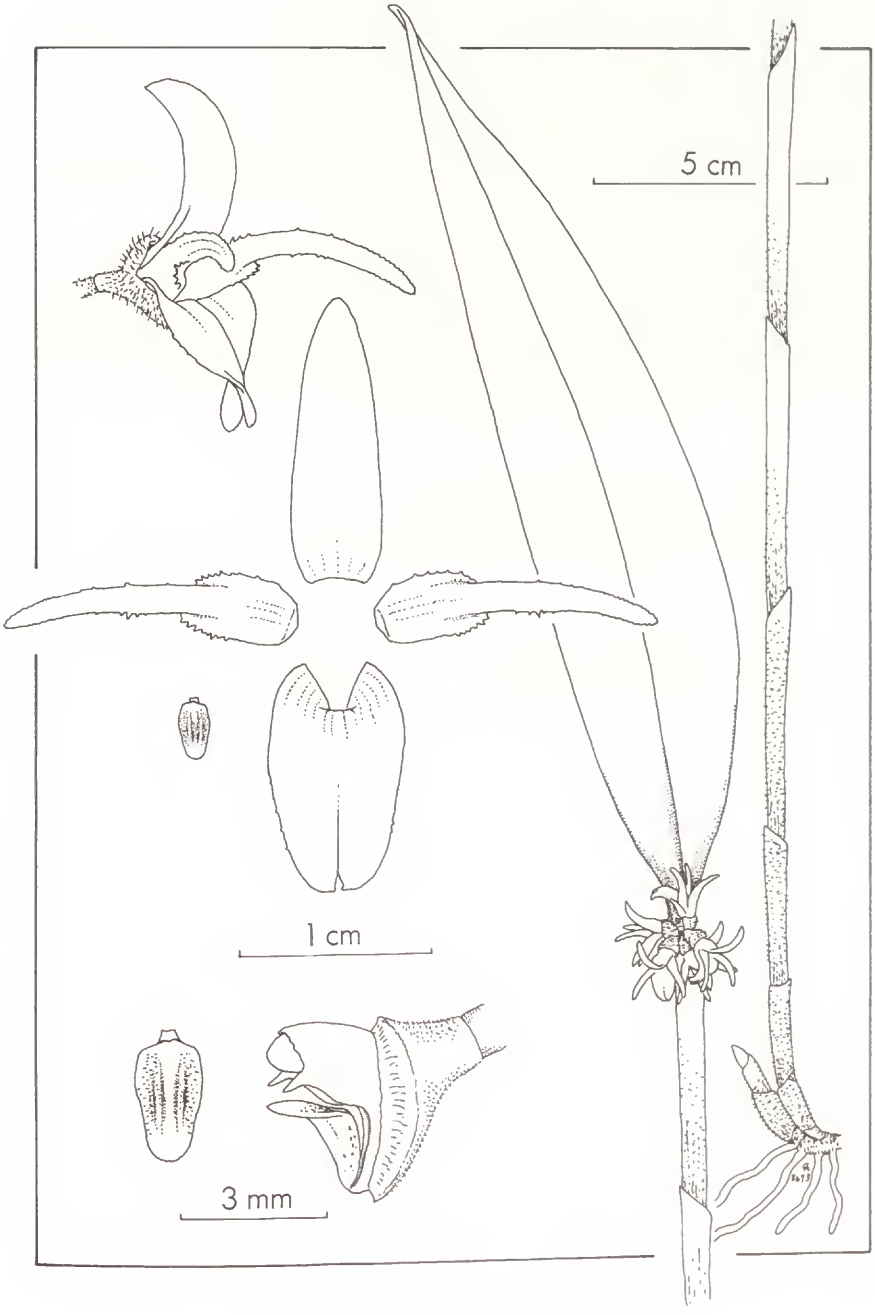


Plate 16. *Myoxanthus gorgon* Luer

Myoxanthus gyas (Luer & Vásquez) Luer, Selbyana 7: 43, 1982.

Bas.: *Pleurothallis gyas* Luer & Vásquez, Phytologia 49: 207, 1981

Ety.: Named for Gyas, the mythological giant with a hundred arms, in allusion to the inflorescence with numerous, protruding, arm-like petals.

Syn.: *Pleurothallis frutex* var. *robusta* C. Schweinf., Bot. Mus. Leafl. 15: 91, 1951.

Ety.: From the Latin *robustus*, "robust," referring to the habit.

Plant large, robust, up to over 1 meter tall, epiphytic to terrestrial,roots coarse, from the bases of the ramicauls. Ramicauls erect, stout, prolific, 7-30 cm long, enclosed by 3-8, tubular, hispid sheaths. **Leaf** erect, coriaceous, narrowly ovate, acute, 7-18 cm long, 2-3 cm wide, cuneate below into the conduplicate, subpetiolate base. **Inflorescence** a fascicle of successive, single flowers, 1 to 5 produced simultaneously amid a glomerate mass of old peduncles and sheaths, at the apex of the ramicaul, the peduncles 2-4 mm long; floral bracts hispid, infundibular, inflated 5-8 mm long, 5-6 mm broad expanded, enclosing the pedicel, ovary and bases of the sepals; pedicel stout, 3 mm long; ovary minutely pubescent, 2 mm long; **sepals** rose to tan, dotted or veined in darker rose, purple or brown, fleshy, finely pubescent externally, with the margins more or less revolute, the dorsal sepal ovate, narrowly obtuse, 16-18 mm long, 5-6 mm wide, the lateral sepals, ovate-falcate, oblique, acute, 15-16 mm long, 5-6 mm wide, each 4- to 5-veined, connate at the very base to form a chin, minutely pubescent at the base; **petals** rose to brown, ovate in the lower fifth, contracted into a slender, terete tail-like apex, 20-25 mm long, 3-4.5 mm wide near the base; **lip** red to purple, oblong, arcuate, 5 mm long, 2 mm wide, the apex convex, obtuse with denticulate-erose margins, the side margins erect below the middle and acutely angled, the disc with a tall pair of parallel lamellae that fit between the teeth of the column, from the lower third through the middle third, the base subtruncate, hinged on the end; **column** red, stout, semiterete, 2.5 mm long, with broadly winged with a pair of slender processes at the apex, the foot 2.5 mm long, concave.

BOLIVIA: Dept. of La Paz: Prov. of Sud Yungas, epiphytic in scrub vegetation near Unduavi, alt. 3200 m, 28 Jan. 1980, *C. Luer, J. Luer, R. Vásquez & R. Lara 4975* (Holotype: SEL; Isotype: K); Prov. of Nor Yungas, cloud forest west of Coroico, alt. 2800 m, 4 Feb. 1980, *C. Luer, J. Luer, R. Vásquez & R. Lara 5160* (SEL). Dept. of Cochabamba: Prov. of Chapare, cloud forest northeast of Cochabamba toward Villa Tunari, alt. 2600 m, 26 Nov. 1978, *C. Luer, J. Luer et al. 3588* (SEL).
PERU: Dept. of Cuzco: Prov. of Paucartambo, Pillahuata, epiphytic in forest on mountain crest, alt. 3400 m, 11 Dec. 1942, *C. Vargas 3007* (AMES, type of var. *robusta*).

This robust species grows into tall, stems of superposed ramicauls. It is allied to the sympatric, relatively frequent *M. frutex*, but *M. gyas* is distinguished by the habit of producing only one stout ramicaul after the other, larger leaves, and larger flowers with the antenna-like petals much exceeding the sepals. The lips and columns of the two species are indistinguishable. Both are found from southern Peru into central Bolivia.

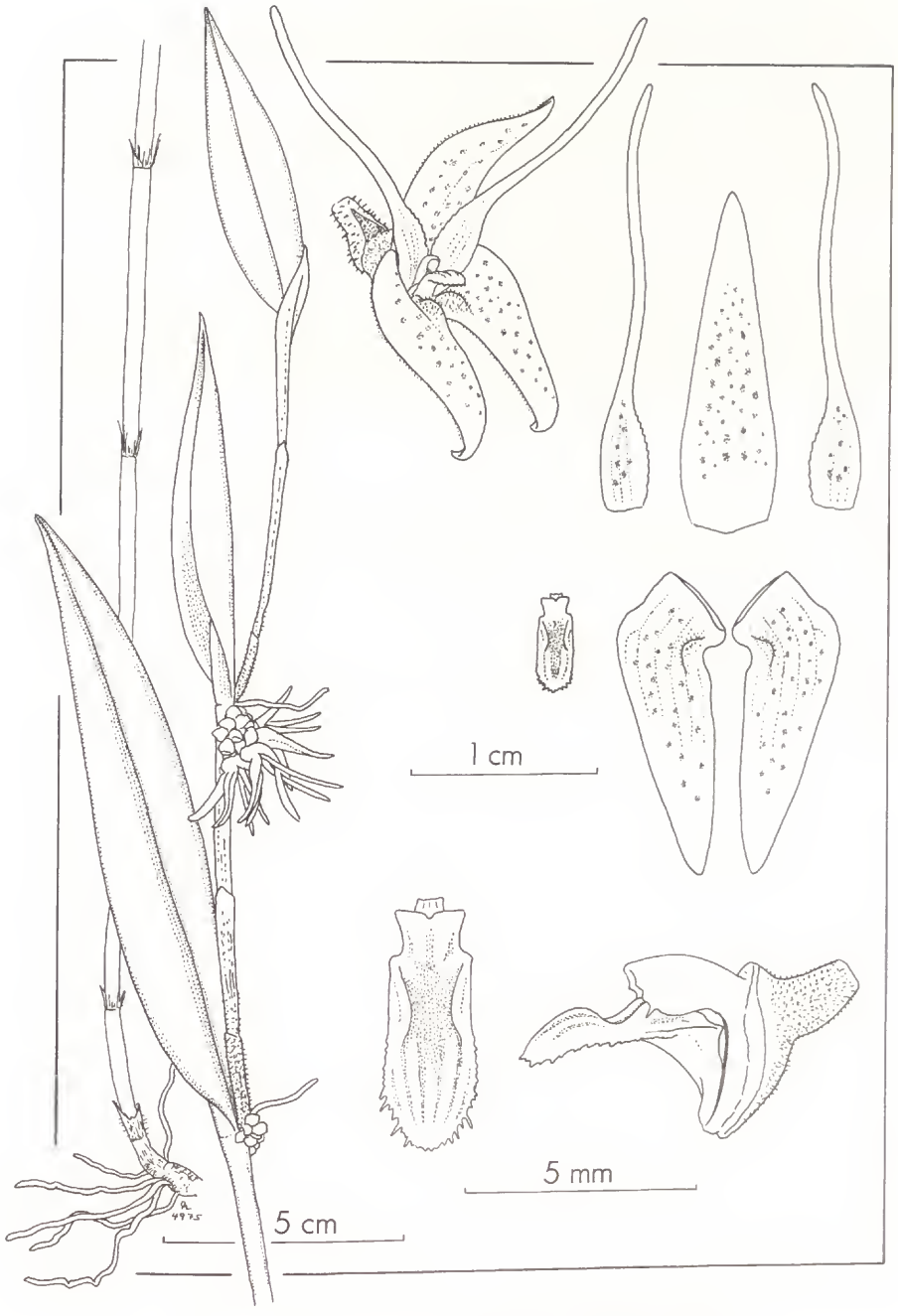


Plate 17. *Myoxanthus gyas* (Luer & Vásquez) Luer

Myoxanthus hirsuticaulis (Ames & Schweinf.) Luer, Selbyana 7: 43, 1982.

Bas.: *Pleurothallis hirsuticaulis* Ames & Schweinf., Sched. Orchid. 10: 29, 1930.

Ety.: From the Latin *hirsuticaulis*, "with hirsute stems," in reference to the sheaths of the ramicauls.

Plant medium to large in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 7-28cm long, enclosed by 4-8 tubular, hispidulous sheaths. **Leaf** erect, coriaceous, narrowly ovate, acute, 10-18 cm long, 1-2 cm wide, cuneate below into a conduplicate, subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles 2-3 mm long, enclosed by a spathe 4-5 mm long; floral bracts pubescent, 5 mm long; pedicels 5 mm long, green with a red pubescence; ovary 2 mm long, minutely pubescent; **sepals** pale yellow-green, veined and mottled with purple, glabrous, the dorsal sepal ovate, subacute, 9 mm long, 5 mm wide, 5-veined, the lateral sepals connate into a suborbicular synsepal, the apex obtuse to rounded, minutely emarginate, 7 mm long, 5.5 mm wide, each 4-veined, convex and pubescent at the base above the column-foot; **petals** falcate, ovate in the lower half with denticulate margins, narrowed from the middle into a deep purple, 1 mm thick, terete, obtuse, distal half, 9 mm long, 3.5 mm wide in the lower half; **lip** subquadrate, deep purple with white, fimbriate margins, 2.5 mm long, 1.5 mm wide, the apex rounded, lightly retuse, the sides rounded and erect below the middle, the disc with a pair of parallel lamellae on the middle third, becoming coalesced at the base, the base subtruncate, with a pair of minute lobules, hinged beneath; **column** greenish white, stout, semiterete, 3 mm long, with broad wings and a pair of slender teeth at the apex, the foot 1.5 mm long, concave.

COSTA RICA: Prov. of Cartago: vicinity of Pejivalle, alt. ca. 900 m, 7 Feb. 1926, *P. Standley & J. Valerio 47052* (Holotype: AMES).
PANAMA: Prov. of Veraguas: northwest of Santa Fé, between Escuela Agricola Alto Piedra and the continental divide, alt. 650-800 m, 8 Sept. 1974, *R. L. Dressler 4745* (SEL); same area, 4 Sept. 1976, *C. Luer & R. L. Dressler 1258* (SEL); same area, alt. 730 m, 4 Apr. 1976, *T. B. Croat & J. P. Folsom 34059* (MO).
PERU: Dept. of Cuzco: Convención, Sahuayuco, alt. 1600 m, 17 Jan. 1947, *C. Vargas 6301* (AMES).

This species is found infrequently in the forested mountains of eastern Costa Rica and western Panama. One isolated population exists in Peru. *Myoxanthus hirsuticaulis* is distinguished by the caespitose habit; slender leaves; a medium-sized flower with deep purple, thick, terete petals protruding; and a subquadrate lip with deeply fringed margins.

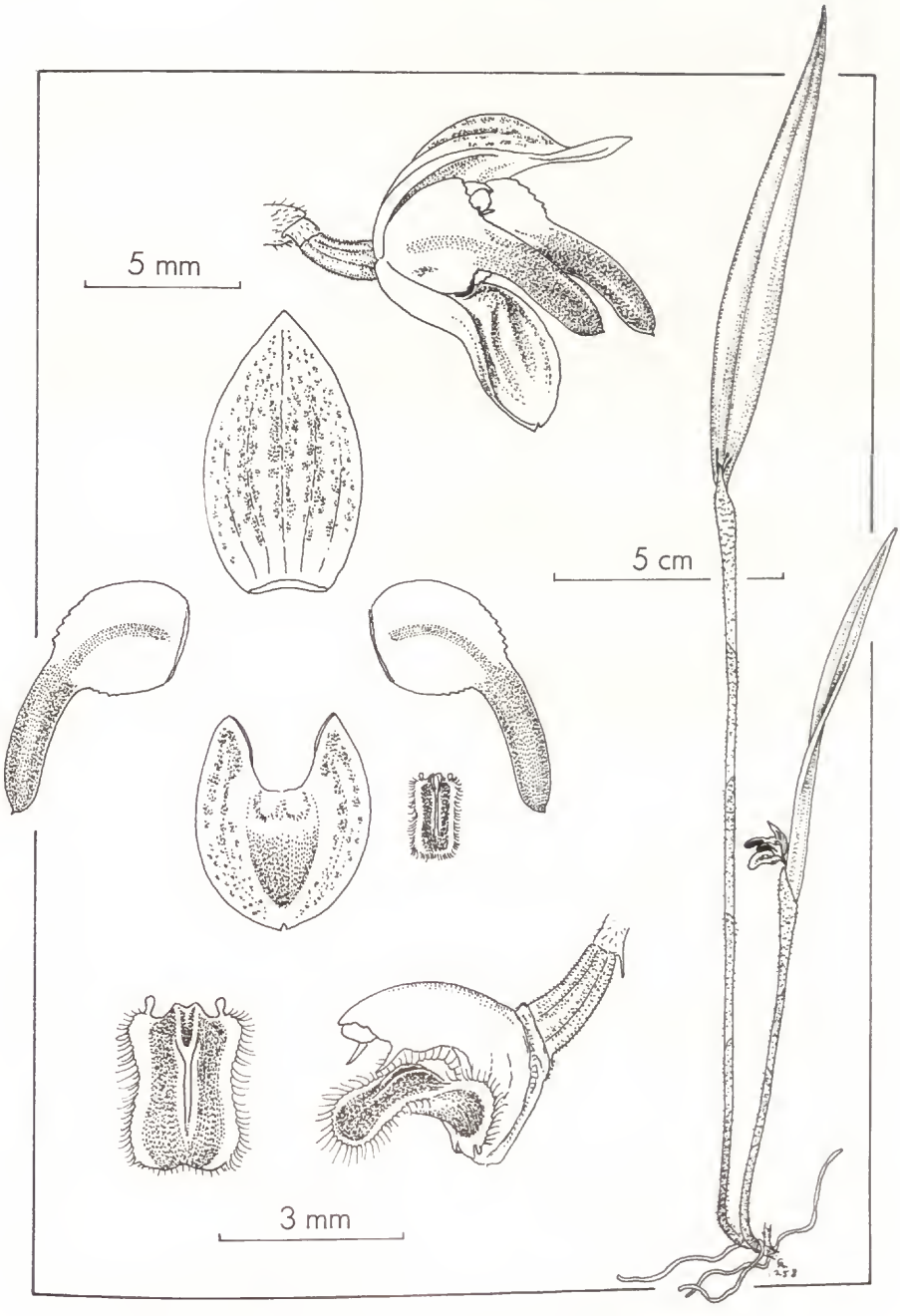


Plate 18. *Myoxanthus hirsuticaulis* (Ames & Schweinf.) Luer

Myoxanthus hystrix (Reichb. f.) Luer, Selbyana 7: 43, 1982.

Bas.: *Pleurothallis hystrix* Reichb. f., Bonplandia 2: 26, 1854.

Ety.: From the Latin *hystrix*, "a porcupine," in allusion to the hispid, cauline sheaths.

Syn.: *Pleurothallis lonchophylla* Reichb. f., Flora 49: 555, 1886, *non* (Barb. Rodr.) Cogn. 1896.

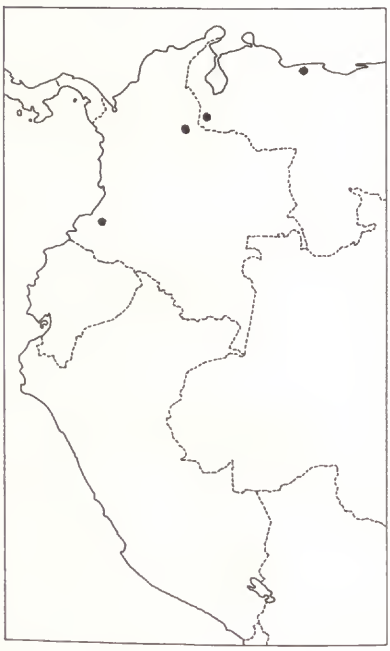
Ety.: From the Greek *lonchophyllos*, "with a lance-shaped leaf," referring to the shape of the leaf.

Syn.: *Humboldtia hystrix* (Reichb. f.,) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Plant medium in size, epiphytic, long-repent, the rhizome 8-15 mm long between ramicauls, concealed by hispidulous bracts; roots coarse. Ramicauls slender, ascending to erect, 4-10 cm long, enclosed by 3-7 tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical-ovate, acute, 5-10 cm long, 1-1.5 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles 1-2 mm long, enclosed by pubescent sheaths 1-2 mm long; floral bracts pubescent, 4-5 mm long; pedicels 4-5 mm long; ovary 1.5 mm long, minutely pubescent; **sepals** yellowish, mottled with red-purple in stripes, verrucose to shortly pubescent within, shortly pubescent externally, the dorsal sepal convex, elliptical-ovate, subacute, 6 mm long, 3.25 mm wide, 7-veined, the lateral sepals broadly ovate, oblique, obtuse, more or less recurved, 5 mm long, 4 mm wide, each 5-veined; **petals** spotted with purple, subquadrate in the lower half with the margins obtusely angled, contracted into a narrow, yellow, distal half with the tip slightly clavate, 7 mm long, 3 mm wide above the base, 0.5 mm wide at the apex; **lip** red with yellow margins, oblong, revolute, 3 mm long expanded with fracturing, 2.5 mm wide, the disc smooth, the base subtruncate, hinged on the end; **column** yellow, flecked with purple, stout, 3 mm long, with broad, rounded wings above the middle, the foot stout 1.5 mm long, concave.

VENEZUELA: "Caracas," *H. Wagener s.n.* (Holotype: W); without locality, from a cultivated specimen (W, type of *P. lonchophylla*). Edo. Táchira: Páramo de Zumbador, collected by R. Mejia, flowered in cultivation by M. & O. Robledo at La Ceja, Colombia, 20 Jan. 1978, *C. Luer 2298* (SEL), 19 Mar. 1989, *C. Luer 14298* (MO).

COLOMBIA: Dept. of Cauca: Paisbamba near Popayán, alt. 2500 m, 23 Feb. 1884, *F. C. Lehmann 3613, 3619* (G). Dept. of Norte de Santander: Culagá Valley above Tapatá north of Toledo, alt. 2300 m, 5 Mar. 1927, *E. P. Killip & A. C. Smith 20302* (AMES).



This small species is apparently rare and local in the eastern Cordillera of Colombia and adjacent Venezuela, and southern Colombia. It is characterized by the long, creeping habit; slender leaves longer than the ramicauls; flowers similar to those of *M. cimex*, *M. melittanthus* and *M. reymondii*, but with only slightly clavate petals and a revolute lip with neither calli nor lobes as found in *M. melittanthus*. The tips of the petals of *M. cimex* and *M. reymondii* are markedly clavate.

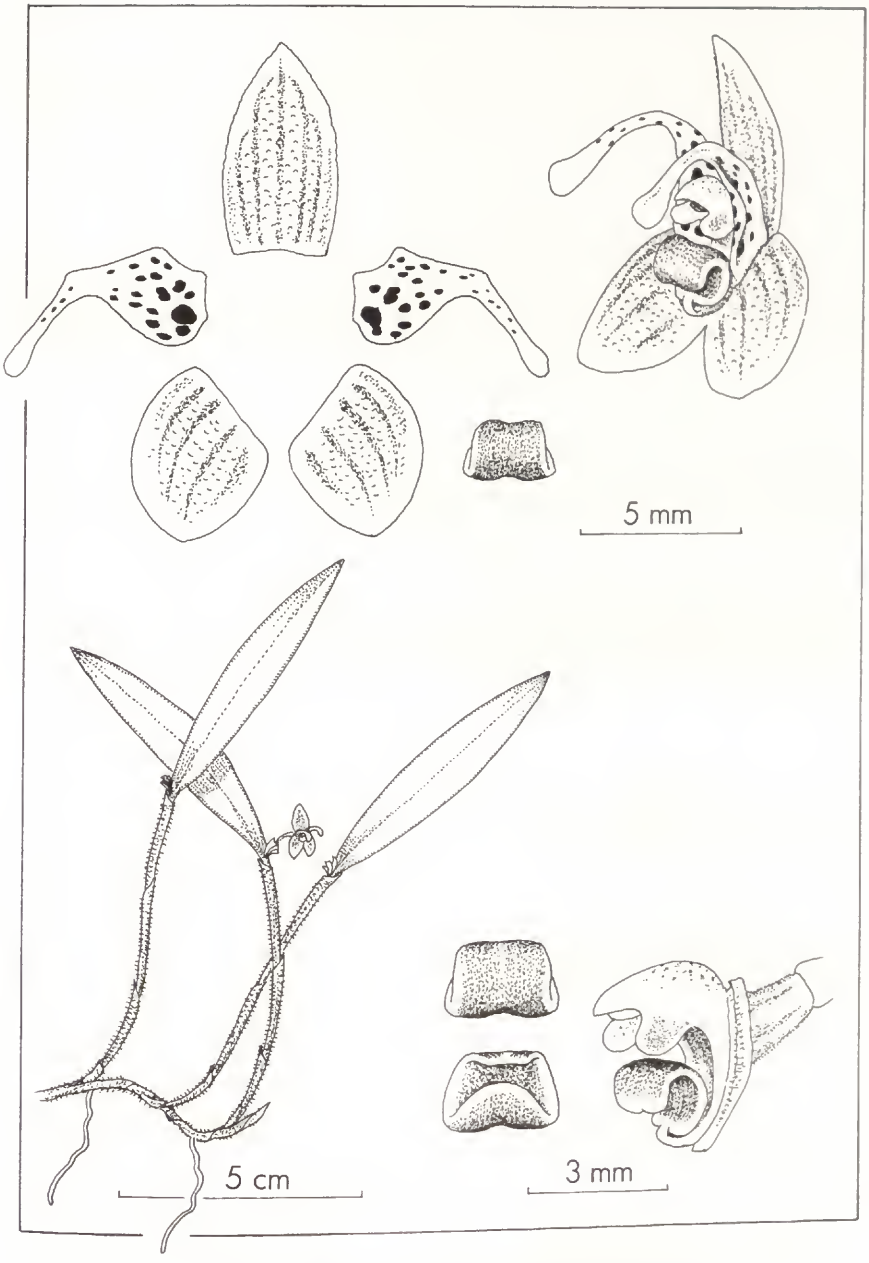


Plate 19. *Myoxanthus hystrix* (Reichb. f.) Luer

Myoxanthus lonchophyllus (Barb. Rodr.) Luer, Selbyana 7: 43, 1982.

Bas.: *Restrepia lonchophylla* Barb. Rodr., Gen. Sp. Orchid. Nov. 1: 35, 1877.

Ety.: From the Greek *lonchophyllos*, "with a lance-shaped leaf," referring to the shape of the leaf.

Syn.: *Pleurothallis warmingii* Reichb. f., Otia Bot. Hamburgensia 2: 93, 1881.

Ety.: Named in honor of Prof. Eugene Warming, Danish botanist.

Syn.: *Chaetocephala lonchophylla* (Barb. Rodr.) Barb. Rodr., Gen. Sp. Orchid. Nov. 2: 39, 1882.

Syn.: *Humboldtia warmingii* (Reichb. f.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis lonchophylla* (Barb. Rodr.) Cogn., Fl. Bras. 3(4): 589, 1896, *non* Reichb. f. 1886.

Syn.: *Pleurothallis seidelii* Pabst, Bradea 2: 54, 1975.

Ety.: Named in honor of Alvin Seidel of Corupá, Santa Catarina, Brazil.

Syn.: *Myoxanthus seidelii* (Pabst) Luer, Selbyana 7: 51, 1982.

Plant medium in size, epiphytic, shortly repent, the rhizome stout, 0.5-1.5 cm long between ramicauls, the sheaths hispidous; roots coarse. Ramicauls ascending to erect, stout, 5-22 cm long, enclosed by 4-7 tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical-ovate, acute, 5-15 cm long, 1-2 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles 10 mm long, minutely pubescent; floral bracts pubescent, 3-4 mm long; pedicels 2.5-4 mm long; ovary 2.5 mm long; **sepals** yellowish tan, sparsely dotted with purple externally, glabrous, the dorsal sepal oblong, obtuse, 8-10 mm long, 4 mm wide expanded, 7-veined, with the sides more or less revolute, the lateral sepals ovate, oblique, subacute to obtuse, convex, 7-9 mm long, 3.5-4.5 mm wide expanded, each 6-veined; **petals** green or yellow with purple spots at the base, narrowly linear from a slightly widened base, the apex yellow and thickened, 7-9.5 mm long, 0.5 mm wide, 1 mm wide at the base; **lip** yellow, suffused with purple at the apex and base, ovate, obtuse, thick, 4.5-5 mm long, 3 mm wide, the apical half hispid-papillose, narrowed with revolute, fimbriate margins, dilated above the middle with erect, rounded margins, the disc with a pair of parallel calli along the middle third, the base subtruncate, with a pair of minute lobules, hinged on the end; **column** yellowish white, flecked with purple, stout, 3-4 mm long, with angled wings above the middle, the foot stout, 2 mm long, concave, with a pair of thick calli near the middle, the upper margin of the anther fimbriate.

BRAZIL: Edo. Minas Geraës: Les capôes des champs de la serra de Caldas, Feb., *B. Rodrigues s.n.* (Holotype: ?); Serra de Caldas, 1 Mar. 1861, *Regnell III 1661* (BR, S); Serra das Bicas, *B. Rodriques s.n.* (?); epiphytic in forest at Lagoa Santa, *E. Warming s.n.* (K, type of *P. warmingii*). Dist. Fed.: Brasilia, Fundaçâo Zoobotânica, 15 May 1961, *E. P. Heringer 8324-118* (NY). Edo. Espirito Santo: near Marechal Floriano, flowered in cultivation, 19 June 1973, *A. Seidel 1068* (?, type of *P. seidelii*). Edo. Sâo Paulo: Conchas, 24 June 1938, *A. Gehrt. 39560* (AMES). Without locality, flowered in cultivation at Glasnevin, Dublin, Ireland, Sept. 1903, (K); without locality, flowered in cultivation by P. & A. Jesup 18 Oct. 1975, *C. Luer 005* (SEL); ; without locality, obtained by T. Mulder, flowered in cultivation at the Vrei Universitet, Amsterdam, Holland, 4 Sept. 1984, *C. Luer 10455* (MO).

This species is endemic in southern Brazil. It is not uncommon in living collections. It is distinguished by the shortly repent habit, leaves about as long as the ramicaul, a single flower, very slender petals minimally swollen at the apex, and a thick, bicrested lip with the apex narrowly rounded with the fringed margins revolute.

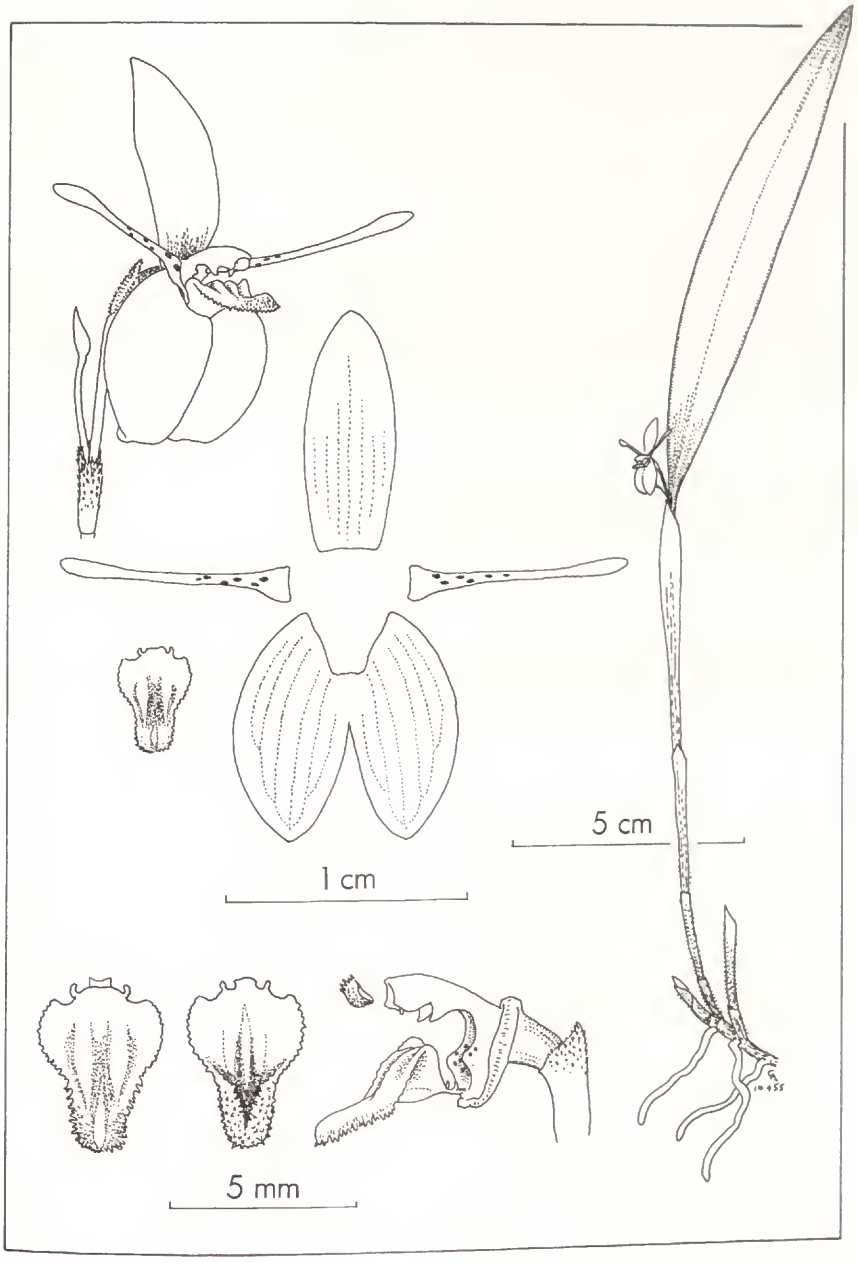


Plate 20. *Myoxanthus lonchophyllus* (Barb. Rodr.) Luer

Myoxanthus mejiae (Garay & Dunsterville) Luer, Selbyana 7: 47, 1982.

Bas.: *Pleurothallis mejiae* Garay & Dunsterville, Venez. Orchid. Ill. 6: 354, 1976.

Ety.: Named in honor of its discoverer, Roberto Mejia.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 10-45 cm long, lightly compressed above, enclosed by 5-8 tubular, hispidulous sheaths. **Leaf** erect, coriaceous, ovate, acute, 8-16 cm long, 3-4.5 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles ca. 1 cm long, within a spathe 1-2 cm long; floral bracts sparsely pubescent, 5 mm long; pedicels 5 mm long; ovary 2 mm long, minutely pubescent; **sepals** pale brown, suffused with red, minutely ciliate, the dorsal sepal elliptical-ovate, obtuse, 7.5-8.5 mm long, 5-5.5 mm wide, 7-veined, the lateral sepals broadly ovate, oblique, obtuse, 6-7 mm long, 5 mm wide, each 5-veined, minutely pubescent at the base above the mentum with the column-foot; **petals** subquadrate in the lower third with the margins obtusely angled, abruptly contracted into a narrow isthmus with revolute margins into a thickened apex, 7-8 mm long, 2.5 mm wide above the base, 1.5 mm wide at the clavate apex; **lip** dark purple, obovoid, 2.5 mm long, 1.75 mm wide, the apex thickened, broadly rounded, subverrucose, decurved, the margins at the base produced into a pair of acute angles, channeled between, the disc between the angles with a flat, rounded callus, the membranous margins of the base with a pedunculate lobule on either side, hinged on the end beneath the callus; **column** white, stout, 2.5 mm long, with broad, rounded wings above the middle, the foot stout, yellow, 2 mm long, with a purple concavity.

VENEZUELA: Edo. Táchira: Alto de Palo Grande above Palmira, *R. Mejia s.n.* (Holotype: AMES), C. Luer illustr. 15483; cloud forest in Zumbador region, alt. 2000 m, *R. Mejia s.n.* (AMES); flowered in cultivation by G. C. K. Dunsterville at Hatillo, 28 July 1982, *C. Luer 8105* (SEL).

This species is apparently endemic in the mountains of western Venezuela. It is similar to the widely distributed *M. reymondii*, but vegetatively it differs in the ramicaul being compressed toward the apex, and the broader leaf. Superficially, the flowers of the two species with prominently clubbed petals are also similar, but the lips are profoundly different. The blade of the lip of *M. mejiae* is markedly thickened and deflexed above the middle. At the base a prominent callus projects backward between a pair of acute, erect, marginal angles. A pair of membranous, pedunculate lobules flank the base.

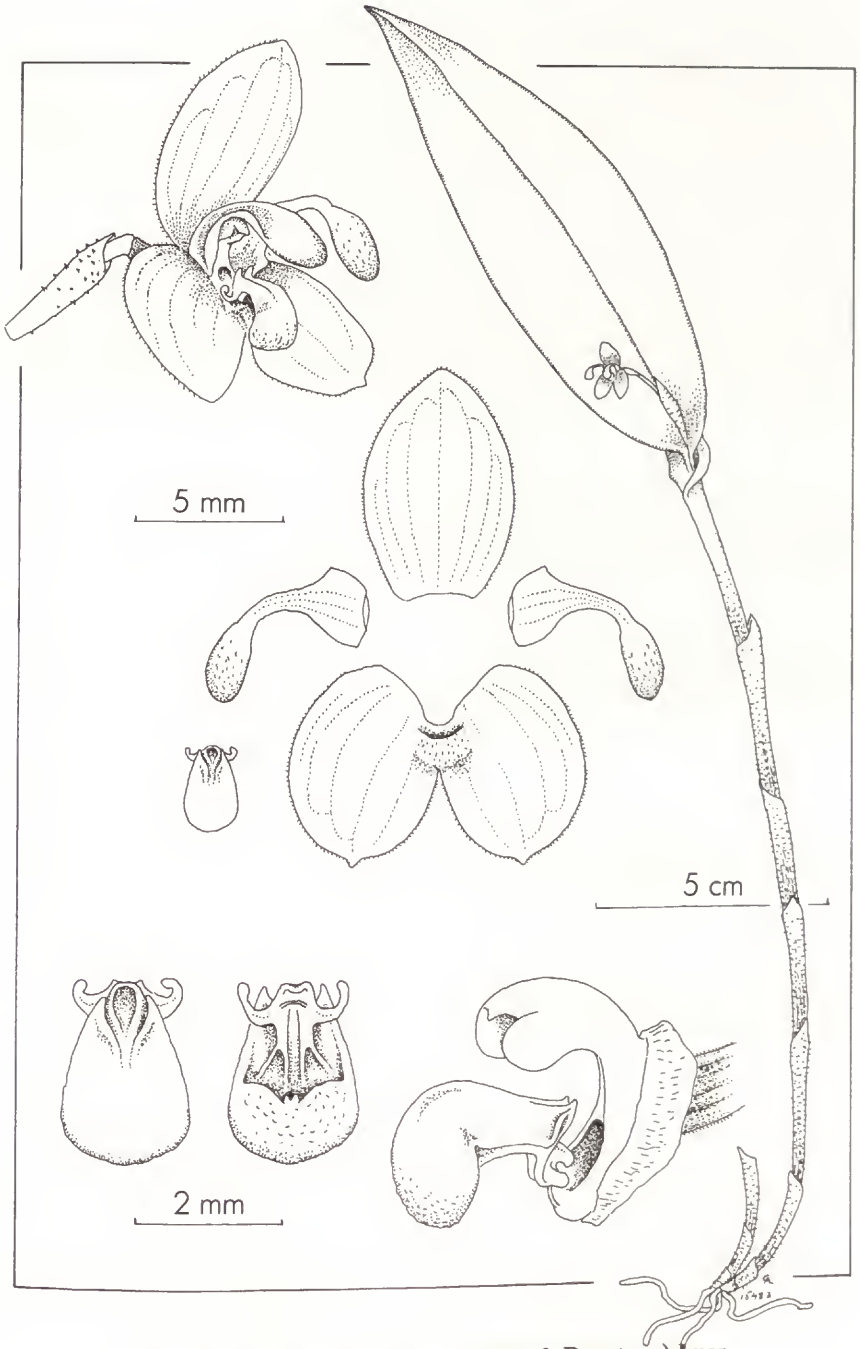


Plate 21. *Myoxanthus mejiae* (Garay & Dunsterv.) Luer

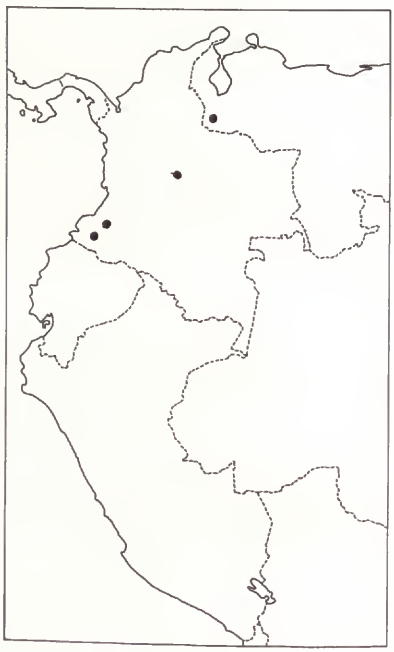
Myoxanthus melittanthus (Schltr.) Luer, Selbyana 7: 47, 1982.

Bas.: *Pleurothallis melittantha* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 49, 1924.

Ety.: From the Latin *melittanthus*, "a honeybee-flower," in reference to the bee-like appearance of the flower.

Plant medium in size, epiphytic, shortly repent, the rhizome stout, up to 1 cm between ramicauls; roots slender. Ramicauls slender, erect, 12-19 cm long, enclosed by 4-7 tubular, hispidous sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, 7-9 cm long, 0.9-1.2 cm wide, cuneate below into a conduplicate, subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles 1 mm long; floral bracts pubescent, 3-5 mm long; pedicels 4 mm long; ovary 2 mm long, pubescent; **sepals** translucent green, veined, spotted and mottled with dark purple, pubescent externally and ciliate, lightly verrucose within, the dorsal sepal ovate, subacute, 4.75 mm long, 3.5 mm wide, 5-veined, the lateral sepals triangular-ovate, obtuse, connate to an elongated column-foot, 3.5 mm long, 4 mm wide, each 4-veined; **petals** translucent with small, black spots, glabrous, transversely rhomboid in the lower fourth, obtusely angled on both margins, the contracted into a slender tail with a clavate tip, 8 mm long, 3 mm wide above the base; **lip** red-brown, oblong, acutely revolute, 2.5 mm long fractured and expanded, 1.75 mm wide, occasionally with indistinct marginal lobules near the middle, the apex rounded, lightly retuse, recurved to the base, the disc with an indistinct pair of low, parallel lamellae, the base rounded, hinged on the end; **column** greenish white, stout, 2.25 mm long, with broadly rounded wings, 1.5 mm deep, the foot 2.5 mm long.

COLOMBIA: Dept. of Nariño: epiphytic, 10 Km northwest of Pasto, Daza, alt. 3000 m, Jan. 1922, *W. Hopp 136* (Holotype: ?). Dept. of Cauca: Páramo de Barbillas, alt. 3070 m, 27 July 1978, *C. Luer, J. Luer, R. Escobar et al. 3023* (SEL). Dept. of Cundinamarca: Quebrada del Chicó, Bogotá, alt. 2900 m, 14 Feb. 1945, *M. Schneider 213* (AMES).
VENEZUELA: Edo. Táchira: Dept. of Junín, southern slopes of Cerro San Isidro north of El Reposa, Quebrada Caliente, alt. 2300-2650 m, 13 Nov. 1982, *G. Davidse & González 22188* (MO, VEN).



This species is known to occur infrequently at high altitudes in both the eastern and western cordilleras of Colombia and adjacent Venezuela. The flowers are similar to those of the shorter, repent *M. hystrix*. The ramicaul of *M. melittanthus*, clad in long-hirsute sheaths, is longer than the leaf. From within the small, dark purplish pubescent flower the long, slender, more or less lightly capitate petals protrude like a pair of antennas of an insect. The lip is simple, but acutely rolled into a transverse tube so that the apex reaches to the hinged base.

Myoxanthus melittanthus is also related to both *M. cimex* and *M. reymondii*, but the flower of the former is much smaller with much smaller clavate tips of slender petals.

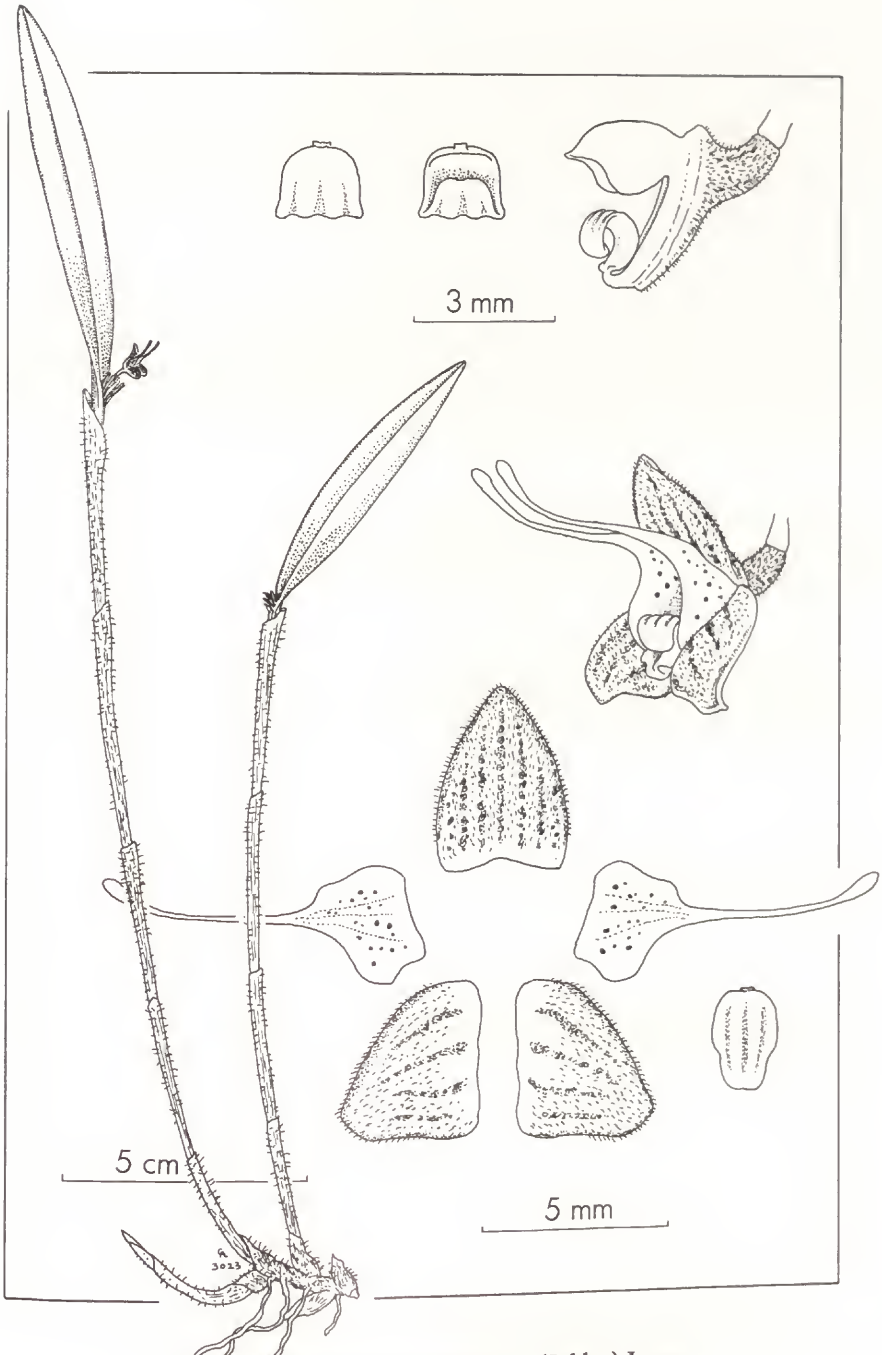


Plate 22. *Myoxanthus melittanthus* (Schltr.) Luer

Myoxanthus merae (Luer) Luer, Selbyana 7: 47, 1982.

Bas.: *Pleurothallis merae* Luer, Selbyana 3: 144, 1976.

Ety.: Named for the community of Mera near where this species was discovered.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-15 cm long, enclosed by 4-6 tubular, minutely hispidulous sheaths. **Leaf** erect, coriaceous, narrowly elliptical-ovate, acute, 5-10 cm long, 4-7 mm wide, gradually narrowed below to the subpetiolate base. **Inflorescence** a solitary flower produced singly and successively in a fascicle, near the apex of the ramicaul, the peduncles 1-2 mm long; floral bracts tubular, pubescent, 5-6 mm long, enclosing pedicel and ovary; pedicel 1-3 mm long; ovary densely short-pubescent, 1-2 mm long; **sepals** translucent yellow-green to light brown, sparsely pubescent externally, the dorsal sepal elliptical-ovate, acute, 3.5-5 mm long, 1.75-2 mm wide, 5-veined, the lateral sepals ovate, oblique, connate at the base, 3.5-5 mm long, 1.5-2 mm wide, 4-veined, with revolute margins; **petals** yellow-white, ovate, in the lower half, narrowed near the middle with revolute margins, acute, thickened at the tip, 3-5 mm long, 1.5 mm wide; **lip** red-brown, elliptical-oblong, 2.5 mm long, 1.25 mm wide, the apex broadly obtuse, microscopically erose, the margins dilated and elevated below the middle, more or less with an erose margin with the junction at the middle, the disc with a low pair of longitudinal calli near the center, the base truncate, with a minute pair of lobules, hinged on the end; **column** greenish pink, stout, semiterete, 2 mm long, 1 mm wide, with a pair of teeth at the apex, the foot stout, concave.

ECUADOR: Prov. of Pastaza: epiphytic in forest east of Mera, alt. 1000 m, 20 Mar. 1976, *C. Luer, J. Luer & P. Taylor 682* (Holotype: SEL). Prov. of Morona-Santiago: Cordillera del Cutucú, 25 Km SE of Logroño, alt. 950 m, 16 Jan. 1976, *M. Madison & F. Coleman 1707* (SEL); epiphytic in forest along the new road between Mendez and Morona, alt. 950 m, 18 Jan. 1989, *C. Luer, J. Luer, P. Jesup, A. Jesup, A. Hirtz & S. Ortega 13983, 13984* (MO); same area, 19 Jan. 1989, *A. Hirtz, A. Andreetta & S. Ortega 4126* (K, MO). Prov. of Napo: new road to Coca north of Archidona, alt. 1200 m, 13 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11240* (MO). Prov. of Zamora Chinchipe: Cordillera del Condor, east of Paquisha, alt. 1200 m, 23 Jan. 1992, *C. Luer, J. Luer, P. Jesup, A. Jesup & A. Hirtz 16121* (MO).

This species is not infrequent in lowland eastern Ecuador from Napo south into the Cordillera del Condor. It is distinguished by the small, densely caespitose habit, slender ramicauls and narrow leaves. The flower is small and borne singly, reminiscent of *Myoxanthus scandens*. The sepals are sparsely red-pubescent externally; the petals are subulate; and the lip is elliptical with erect, rounded, minutely denticulate margins.

Myoxanthus monophyllus Poepp. & Endl., Nov. Gen. et Spec. 1: 50, t. 88, 1835.

Ety.: From the Greek *monophyllos*, "one-leaved," referring to the unifoliate stems.

Syn.: *Pleurothallis poeppigii* Lindley, Companion Bot. Mag. 2: 354, 1836.

Ety.: Named in honor of explorer Eduard Poeppig who discovered this species.

Syn.: *Humboldtia poeppigii* (Lindley) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis myoxanthus* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 141, 1921.

Ety.: Named for the genus *Myoxanthus*.

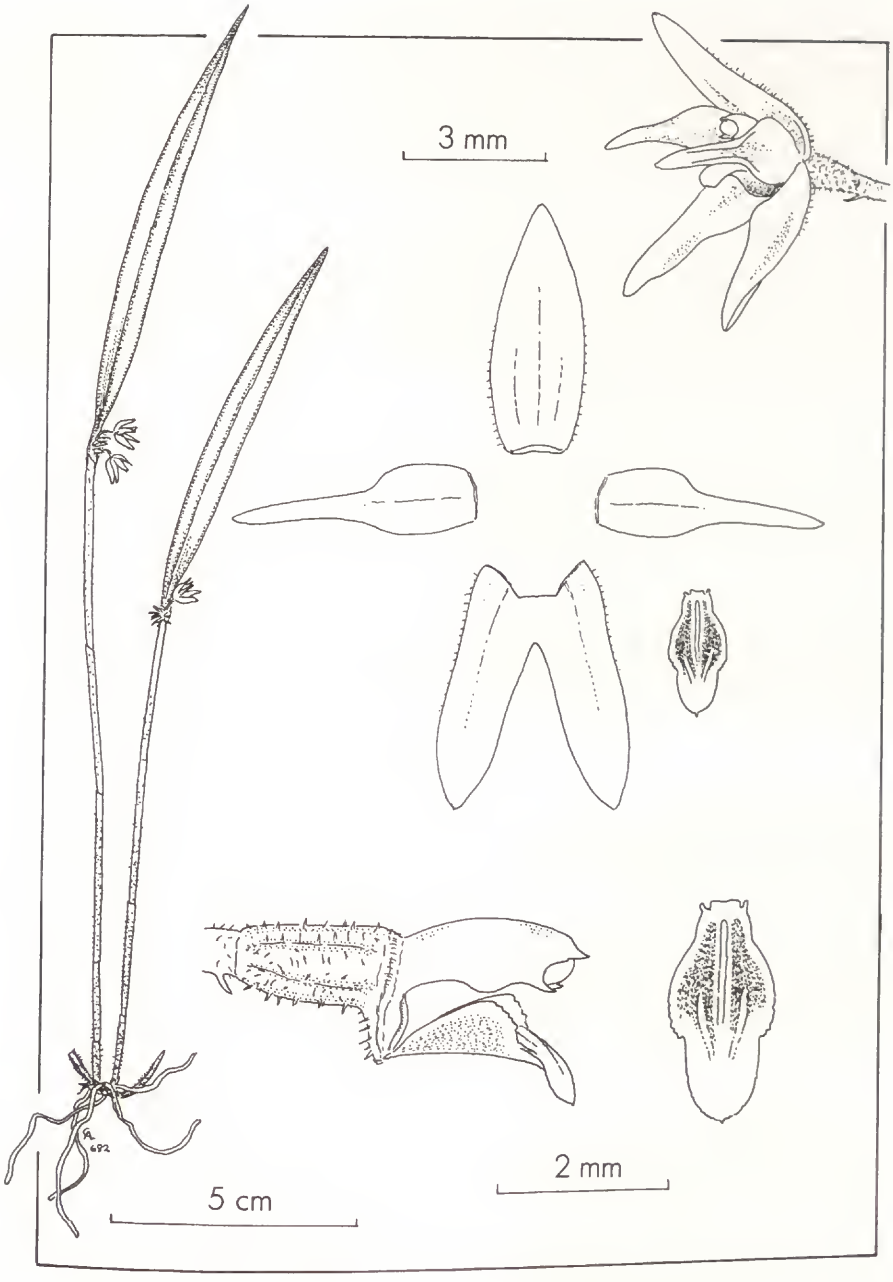
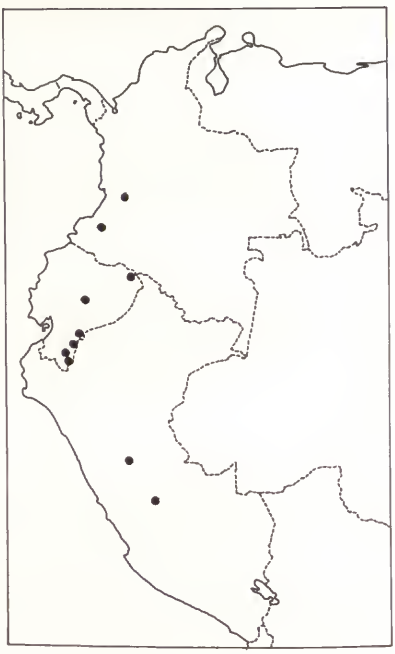


Plate 23. *Myoxanthus merae* (Luer) Luer

Plant large, epiphytic, shortly repent to caespitose; roots coarse. Ramicauls stout, erect, 30-40 cm long, enclosed by 5-8 long, tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly ovate, acute, 20-40 cm long, 3-5.5 cm wide, cuneate below into the sessile base. **Inflorescence** a congested fascicle of many, simultaneous, single flowers, at the apex of the ramicaul, the peduncles 1 cm long; floral bracts inflated, infundibular, coarsely long-pubescent, 7-8 mm long, enclosing pedicel, ovary and the bases of the sepals; pedicel stout, 1.5 mm long; ovary pubescent, 1 mm long; **sepals** white, glabrous, the dorsal sepal narrowly ovate, acute, with revolute margins, 22 mm long, 3.5 mm wide, the lateral sepals connate at the base, narrowly ovate, oblique, acute, spreading 22 mm long, 2.5-3 mm wide; **petals** white, glabrous, narrowly ovate and minutely denticulate toward the base, 29 mm long including the tail, 2 mm wide near the base, the apex contracted into a slender, terete tail; **lip** white to cream, oblong-ligulate, obtuse, 2.5 mm long, 1 mm wide, the margins elevated below the middle, the disc with a low pair of longitudinal calli near the center, the base truncate, hinged on the end; **column** yellow-green, stout, semiterete, 1.5 mm long, 1 mm wide, irregular at the apex with a pair of long teeth, the foot stout, concave.



PERU: Dept. of Huanuco: common and epiphytic in the forests near Casapi, Feb., *Poeppig 1743* (Holotype: W; Isotype: K). Dept. of Junín: Schuncke hda. above San Ramón, alt. 1300-1700 m, Feb. 1942, *C. Schuncke A53* (US).
ECUADOR: Prov. of Morona-Santiago: Bomboiza, alt. 700-800 m, 3 Oct. 1967, *B. Sparre 19276* (S); Misión Salesiana Shuar, alt. 800-1000 m, 5 Nov. 19??, *C. Cerón & D. Neil 468* (MO); above Campamento Guarumales, alt. 1750 m, 24 Mar. 1991, *C. Luer & J. Luer 15244* (MO).Prov. of Napo: between Hollín and Loreto, alt. 1200 m, 21 Apr. 1989, *C. Cerón & F. Hurtado 6483* (MO). Prov. of Zamora-Chinchipe: south of Zamora toward Zumba, alt. 1450 m, 27 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10963* (MO); Río Zamora west of Zamora, alt. 950 m, 20 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11946* (MO); El Retorno between Loja and Zamora, alt. 1550 m, 26 July 1985, *C. H. Dodson & A. Embree 16117* (K); same area, *S. Dalström & L. Årnby 1459* (K, MO); Cordillera del Condor east of Paquisha, alt. 1200 m, 19 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11930* (MO). Without locality, collected by F L Stevenson 111974-10, flowered in cultivation 1974, *C. Luer 167* (SEL).
COLOMBIA: Dept. of Cauca: Alto del Potrerito near Vijes, 20 Mar. 1876, *E. André 2553* (K); terrestrial and epiphytic near Cimanduat, Río Bitaco, alt. 1500 m, 18 Mar. 1883, *F. C. Lehmann 2737* (BR, G). Dept. of Valle del Cauca: Calima, Río Calima, 14 Sept. 1922, *E. P. Killip 11195* (AMES, K, NY, US).

This large species occurs locally in the mountainous forests of the eastern slopes of the Andes from southern Colombia into northern Peru. It was the first species of the genus to be discovered and recorded. The ramicauls are long and stout with scurfy sheaths as in most species, but *M. monophyllus* is easily distinguished by the large, dense, globose mass of numerous, overlapping, long-tailed, whitish flowers. The large, long-spiculate floral bract engulfs the pedicel, ovary and lower part of the flower. The long-terete petals are longer than the sepals. The lip is small and ligulate.

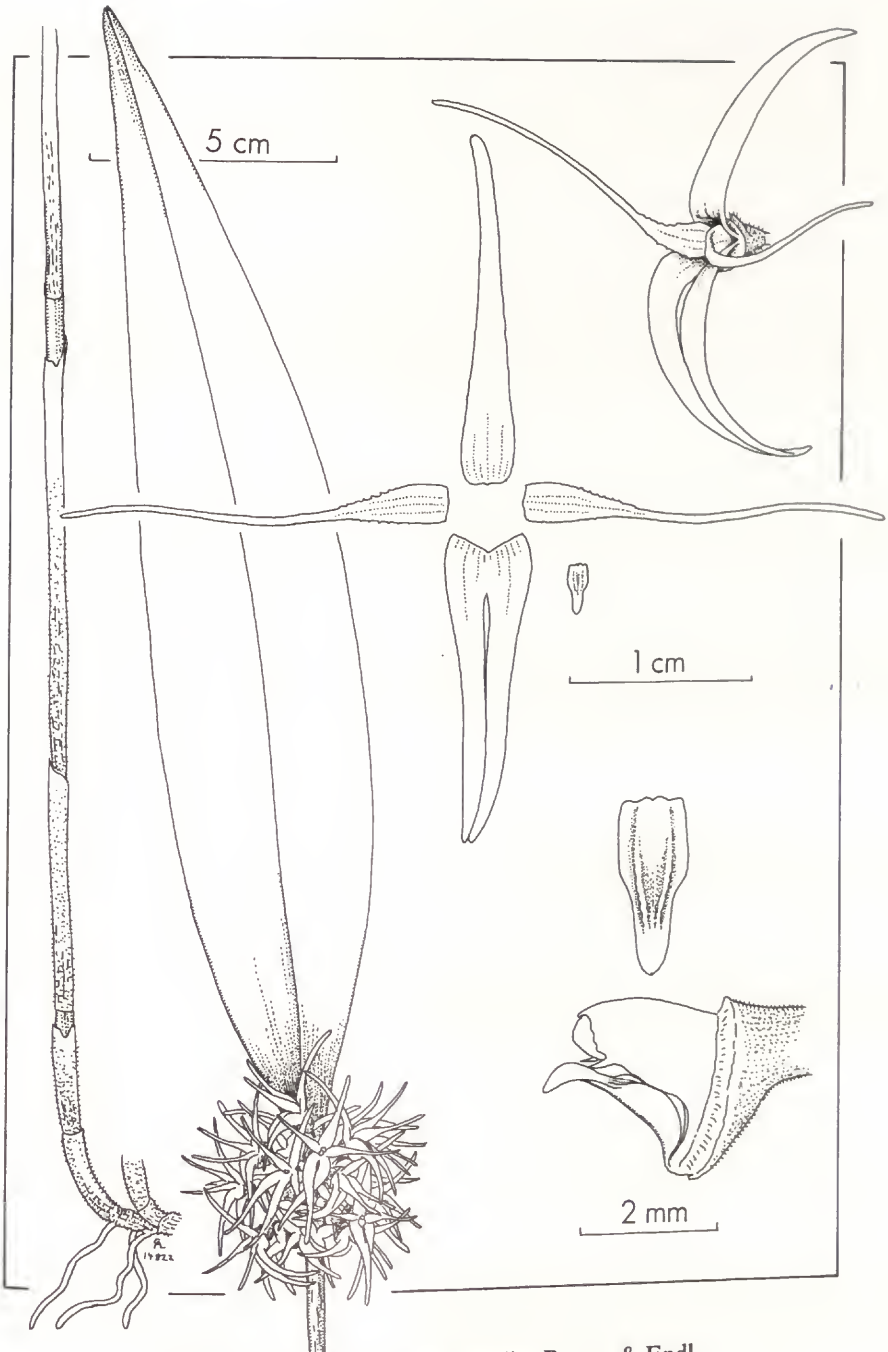


Plate 24. *Myoxanthus monophyllus* Poepp. & Endl.

Myoxanthus neillii Luer & Dodson, sp. nov.

Ety.: Named in honor of David Neill, curator of the Missouri Botanical Garden, who collected this species.

Species haec *Myoxantho exasperato* (Lindley) Luer similis, sed floribus parvis sepalis 4-5 mm longis, petalis oblongis non-angustatis, labello subpandurato apiculato et column bidentata distinguitur.

Plant medium in size to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 15-27 cm long, enclosed by 5-8 long, tubular, minimally scabrous sheaths. **Leaf** erect, thickly coriaceous, narrowly ovate, acute, 15-20 cm long, 2.5-3-5 cm wide, cuneate below into a petiole ca. 1 cm long. **Inflorescence** a congested fascicle of several, single, simultaneous flowers, at the apex of the ramicaul, the peduncles minutely pubescent, 8-9 mm long; floral bracts infundibular, minutely pubescent, 3 mm long, enclosing pedicel; pedicel stout, 2 mm long; ovary lightly verrucose, 1.5 mm long; **sepals** yellow-green, glabrous, the dorsal sepal narrowly elliptical, subacute, 4-5.5 mm long, 2 mm wide, 5-veined, the lateral sepals connate at the base, oblong, oblique, subacute, 4-5 mm long, 1.5 mm wide, 4-veined; **petals** yellow-green, oblong, subacute, 3.5-4.75 mm long, 1 mm wide, 3-veined, thickened above the middle; **lip** greenish, subpandurate, arcuate, 2 mm long, 1 mm wide, expanded, the apex obtusely acuminate, minutely erose, apiculate, the margins elevated below the middle, the disc with a low pair of longitudinal calli down the center, the base subtruncate, hinged on the end; **column** greenish white, stout, semiterete, 1.5 mm long, 0.75 mm wide, with a pair of apical teeth, the foot stout, concave.

ECUADOR: Prov. of Napo: near Coca, alt. 200 m, epiphytic in large fallen tree, collected by D. Neill, flowered in cultivation at the Río Palenque Science Center, 3 Oct. 1986, *C. H. Dodson 16621* (Holotype: MO), C. Luer illustr. 15501. Prov. of Morona Santiago: Pozo petrolocro "Garza" de Tenneco, northeast of Montalvo, alt. 260 m, 2 July 1989, *V. Zak & S. Espinoza 4431* (MO). Prov. of Sucumbios: Imuya Cocha on Río Lagarto Cocha, alt. 220 m, 30 July 1991, *C. H. Dodson, P. Scharff & M, Ryan 18846* (MO).
PERU: Dept. of Loreto: vicinity of Iquitos, alt. 100 m, Aug. 1937, *G. Klug 10134* (AMES).

This species occurs in the eastern lowlands of Ecuador and Peru. It is another of several that are closely related to both *M. affinis* and *M. exasperatus*. All are vegetatively similar, except that only the lowermost cauline sheaths of *M. neillii* are scurfy. *Myoxanthus neillii* is best distinguished by the very small flowers with sepals only four or five millimeters long, and oblong petals that are not narrowed above the middle. The subpandurate lip is most similar to that of *M. exasperatus* with the apex acuminate-apiculate. The column, however, has a pair of apical teeth as found in *M. affinis*.

Myoxanthus octomeriae (Schltr.) Luer, Selbyana 7: 47, 1982.

Bas.: *Pleurothallis octomeriae* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 17: 21, 1922.
Ety.: Named for the superficial similarity of the plant to a species of *Octomeria*.

Syn.: *Pleurothallis cerea* Ames, Sched. Orchid. 4: 19, 1923.
Ety.: From the Latin *cereus*, "waxy," referring to the fleshy floral parts.

Syn.: *Pleurothallis ramentacea* Garay & Dunsterville, Venez. Orchids Ill. 6: 634, 1976.
Ety.: From the Latin *ramentaceus*, "covered with flattened scales," referring to the sheaths of the ramicauls.

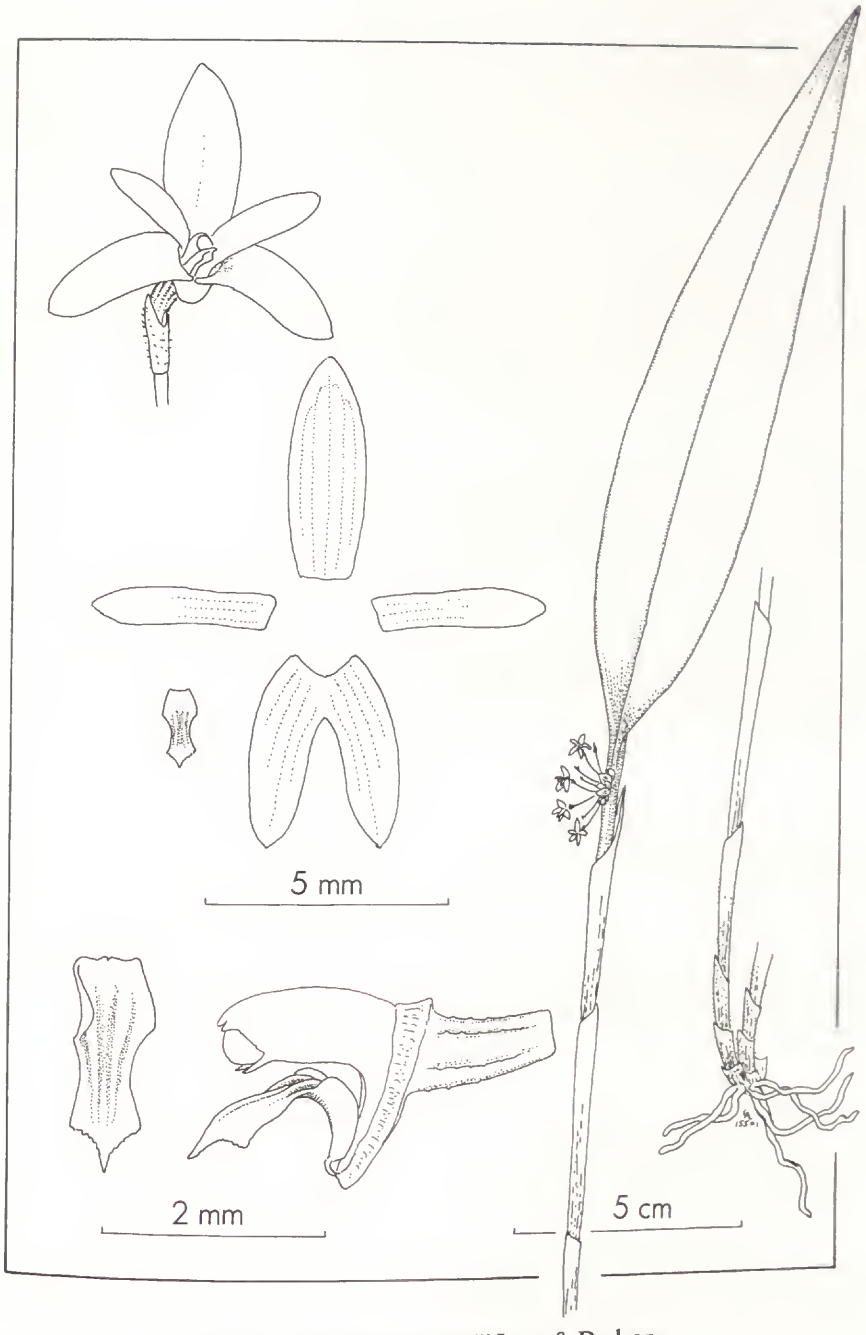
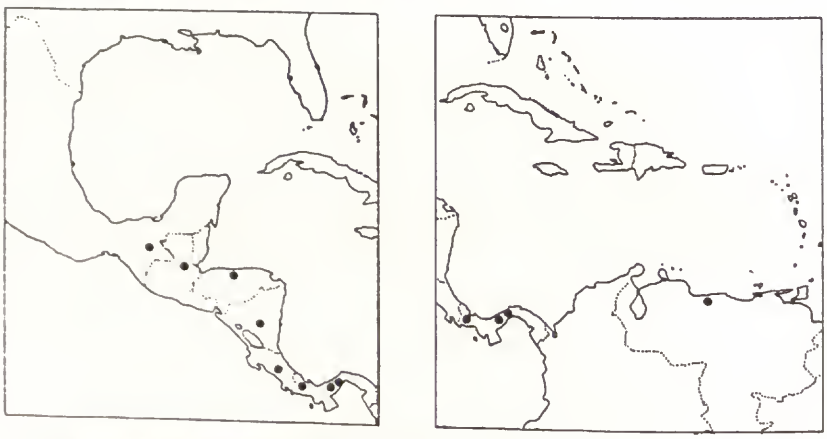


Plate 25. *Myoxanthus neillii* Luer & Dodson

Plant medium in size to large, epiphytic, shortly repent, the rhizome stout, ca. 1 cm long, covered by hispidous sheaths; roots coarse. Ramicauls stout, erect, 8-30 cm long, enclosed by 5-6 tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, elliptical to narrowly elliptical, acute to subacute, 8-17 cm long, 2-6 cm wide, cuneate below into a conduplicate, subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, produced 1 to 20 simultaneously, at the apex of the ramicaul, the peduncles 1-2 mm long; floral bracts sparsely pubescent, 3 mm long; pedicels 2.5-3 mm long; ovary 4 mm long; **sepals** white to creamy white toward the apices, fleshy, glabrous, the dorsal sepal elliptical, obtuse to rounded at the apex, 6.5-8 mm long, 2-3 mm wide, 3-(5-)veined, the lateral sepals microscopically pubescent within, ovate, oblique, subacute to obtuse, 6-7 mm long, 2-3 mm wide, each 3-(5-)veined, connate only at the base; **petals** white, fleshy, narrowly elliptical-ovate, narrowly obtuse, 6 mm long, 1.5-2 mm wide; **lip** yellowish or white, yellow-orange toward the base, suffused with purple along the crests, fleshy, oblong, obtuse, 2.5 mm long, 1 mm wide, the sides broadly rounded and erect below the middle, the disc more or less minutely verrucose, with a pair of parallel, more or less denticulate lamellae on the middle third, the base subtruncate, hinged on the end; **column** white, stout, semiterete, 2 mm long, with broad wings and a pair of minute teeth at the apex, the foot 1 mm long, thick, concave; anther bright red.

PANAMA: Prov. of Chiriquí: in forested ravines, alt. 5000 ft., *C. W. Powell 252* (Lectotype: AMES), C. Luer illustr. 15482; without locality, alt. 5000 ft., Oct. 1923, *C. W. Powell 3444* (AMES); above Boquette, *F L Stevenson 86-723-1* (MO). Prov. of Coclé: hills north of El Valle de Antón, trail to Las Minas, alt. 1000 m, *P. C. Allen 2719* (AMES). Prov. of Panama: hills above Campana, alt. 600-800 m, *P. C. Allen 1881* (AMES).
MEXICO: Edo. Chiapas; Ocosingo, near Laguna Ocotal Grande, alt. 950 m, 20 July 1954, *R. L. Dressler 1731* (AMES).
GUATEMALA: Dept. of Alta Verapaz: collected near Cobán, flowered in cultivation by O. Mittelstaedt, 27 Nov. 1990, *C. Luer 14834* (MO).
HONDURAS: Dept. of Atlantica: near Tela Guaymas, 17 Mar. 1923, *O. Ames II 217* (AMES).
NICARAGUA: without collection data, flowered in cultivation at SEL, 26-74-65, 1975, *C. Luer 0190* (SEL).
COSTA RICA: Fajando, on rocks, ca. 1867, *A. Endres 268* (W). Prov. of Cartago: Agua Caliente, *C. H. Lankester 358* (K, type of *P. cerea*).
VENEZUELA: without locality, *J. A. Steyermark s.n.* (AMES, type of *P. ramentacea*). Edo. Barinas: Reserva Forestal de Ticoporo, Unidad 2, alt. 200-300 m, flowered in cultivation in Maracay, 9 Sept. 1987, *G. Carnevali & I. Ramírez 2334* (VEN).



First collected and illustrated by Endres from Costa Rica about 1867, this species was not described until 1922 by Schlechter from a Panamanian collection by Powell. This species occurs locally in much of Central America, as well as in an area of lowland, coastal Venezuela.

Vegetatively it is similar to most others in the section. Occasionally exceptionally large plants occur, which led Ames to describe *Pleurothallis cerea*. However, huge plants sometimes grow in association with usual-sized plants,

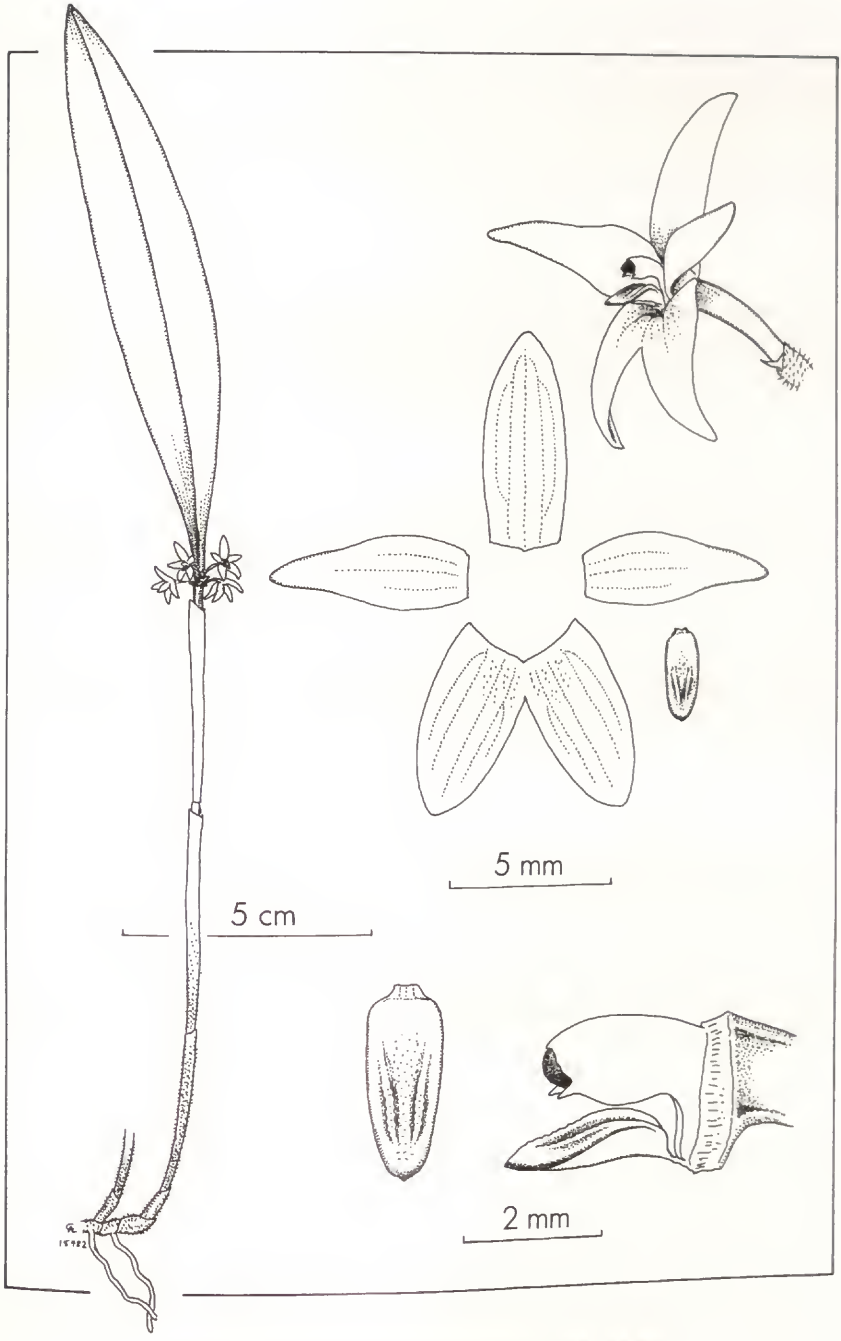


Plate 26. *Myoxanthus octomeriae* (Schltr.) Luer

but all the flowers are identical. The flowers are produced in profusion, but usually only once during the year. The sepals and petals are fleshy, white or creamy white and glabrous. The ligulate lip is white to pale yellow and minutely verrucose with a pair of purple crests and margins.

Myoxanthus octomeriae is extremely similar to the Mexican *M. octomerioides*, differing mainly in less fleshy flowers and an oblong lip without marginal angles below the middle.

Myoxanthus octomerioides (Lindley) Luer, Selbyana 7: 47, 1982.

Bas.: *Pleurothallis octomerioides* Lindley, Companion Bot. Mag. 2: 354, 1836.
Ety.: Named for the superficial similarity of the plant to a species of *Octomeria*.

Syn.: *Pleurothallis congesta* A. Rich. & Gal., Ann. Sci. Nat. Bot. ser. 3, 3: 17, 1845.
Ety.: From the Latin *congestus*, "congested," referring to the inflorescence.

Syn.: *Humboldtia octomerioides* (Lindley) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Plant medium in size to large, epiphytic, shortly repent, the rhizome stout, ca. 1 cm long, covered by hispidous sheaths; roots coarse. Ramicauls stout, erect, 8-20 cm long, enclosed by 4-6 tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical, subacute, 8-13 cm long, 2-3.5 cm wide, cuneate below into a conduplicate, subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, several produced simultaneously, at the apex of the ramicaul, the peduncles 1-2 mm long; floral bracts sparsely pubescent, 3 mm long; pedicels 2.5-3 mm long; ovary 3 mm long; **sepals** pale yellow, thickly fleshy, glabrous, the dorsal sepal elliptical, obtuse to rounded at the apex, 7-8 mm long, 3.5-4.5 mm wide, 3-(5-)veined, the lateral sepals ovate, oblique, obtuse, 6-7 mm long, 3-4 mm wide, each 3-(5-)veined, connate only at the base; **petals** pale yellow, fleshy, elliptical-ovate, obtuse, 7 mm long, 2-3 mm wide; **lip** yellow with the margin bright purple, fleshy, ovoid, obtuse, 2.5 mm long, 2 mm wide expanded, the sides erect and obtusely angled below the middle, the disc superficially channeled, with a pair of parallel lamellae on the middle third, the base subtruncate, hinged on the end; **column** white, stout, semiterete, 2.5 mm long, with broad wings, with or without a pair of minute teeth at the apex, the foot thick, 2 mm long, concave.

MEXICO: without locality, cultivated by J. Wilmore of Oldford, England, collected by *Henchman s.n.* (Holotype: K); flowered in cultivation, presumably at BR, Oct. 1842, *J. Linden s.n.* (W); Pierriere, 29 Sept. 1908, *Beauveal 6743* (G). Edo. Guerrero: near Omiltemi on oak trees, alt. 1700 m, 19 Oct. 1936, *O. Nagel 898* (AMES); near Santa Barbara southwest of Chilpancingo on oak trees, alt. 1700 m, 18 Nov. 1937, *O. Nagel 1667* (AMES, MO).
BELIZE: Dist. of Toledo, Blue creek, alt. 30 m, collected 28 Feb. 1979, flowered in cultivation 18 Nov. 1979 *J. Briggs 215* (K).
NICARAGUA: collected 1867-8, by *R. Tate 456* (K).

This long-known Mexican species is very similar to the Central American *M. octomeriae* with which it seems to intergrade. *Myoxanthus octomerioides* is distinguished by the thicker, fleshier floral parts that do not part widely. The lip is ovoid with obtusely angled margins below the middle. The smooth disc is lightly channeled between low lamellae. The flowers of *M. octomeriae* are not as thick and they often open widely. The disc of the latter is more or less lightly verrucose between sides that are not angled.

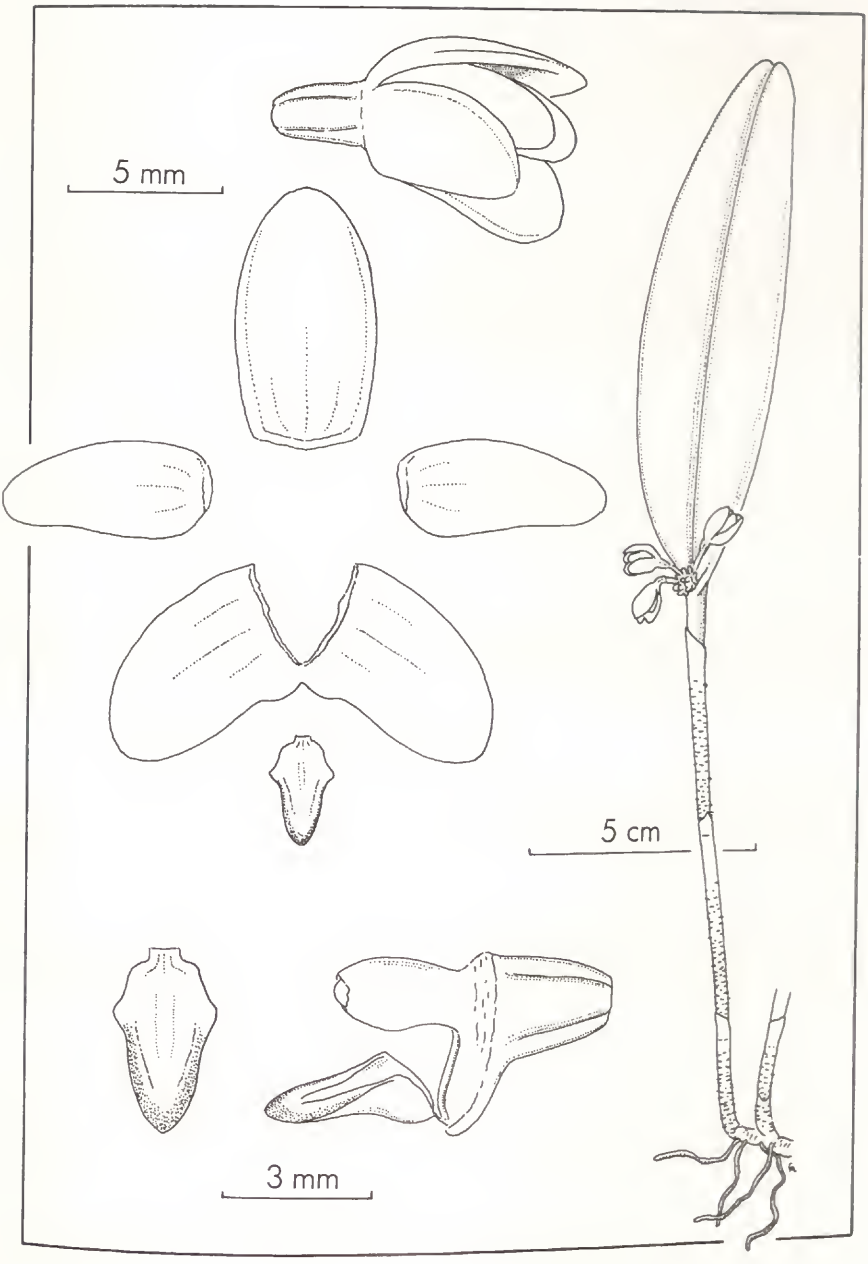


Plate 27. *Myoxanthus octomerioides* (Lindley) Luer

Myoxanthus parvilabius (C. Schweinf.) Luer, Selbyana 7: 49, 1982.

Bas.: *Pleurothallis parvilabia* C. Schweinf., Bot. Mus. Leafl. 20: 14, 1962.

Ety.: From the Latin *parvilabius*, "with a small lip," referring to the size of the labellum.

Plant medium to large in size, terrestrial to epiphytic, scandent, forming loose masses up to a meter high; roots, slender, from the bases of the ramicauls. Ramicauls stout, erect, prolific, up to 40 cm long, forming fascicles of 3-8 slender ramicauls at the apex, 1-5 cm long, enclosed by 2-8, tubular, shortly hispid sheaths. **Leaf** erect in relationship to the ramicaul, coriaceous, narrowly elliptical, acute, 4-10 cm long, 1-1.5 cm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a congested fascicle of successive, single flowers, at the apex of a ramicaul, the flowers produced singly or 2-3 simultaneously, the peduncles 1-2 mm long; floral bracts hispid, 3 mm long; pedicel stout, 2.5 mm long; ovary glabrous, 2 mm long; **sepals** yellowish, mottled with rose-brown, glabrous, the dorsal sepal oblong-ovate, subacute, lightly acuminate, 8 mm long, 4 mm wide, 5-veined, the lateral sepals ovate, oblique, obtuse, apiculate, 6.5 mm long, 3 mm wide, each 3- to 4-veined, connate 1 mm and minutely pubescent at the base; **petals** yellowish, obovate in the lower half, lightly denticulate, contracted into a slender, terete apex, 6 mm long, 2.75 mm wide in the lower half; **lip** deep purple, thick, broadly obovate, arcuate, 2.5 mm long, 2 mm wide, the apex broadly rounded, minutely denticulate, the disc with a pair of small, rounded calli at the base and a low pair of parallel lamellae in the center, the base hinged on the end; **column** pinkish white, stout, semiterete, 2.75 mm long, with broad wings above the middle and a pair of teeth at the apex, the foot 2.5 mm long, concave.

GUYANA: Serra Acarai, epiphytic on low tree, on rocky hill top, east of Onoro, 2 Oct. 1952, Forestry Dept. G 340 *Record No. 7316* (Holotype: NY).
SURINAME: without locality, collected by R. Determann, flowered in cultivation 2 Aug. 1981, *C. Luer 6437* (SEL).
VENEZUELA: Terr. Fed. Amazonas: Dept. Río Negro, Cerro de La Neblina, alt. 780 m, 15 Mar. 1984, *R. Liesner 16669B* (VEN).
ECUADOR: Prov. of Napo: epiphytic among shrubs around the Bermejo oil fields north of Lumbaqui, alt. 850 m, 9 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11731* (MO); Hollin-Loreto road, alt. 1000 m, Nov. 1988, *A. Hirtz 3917* (MO); Río Jatunyacu above Shandia, alt. 650 m, *A. Hirtz & S. Ortega 5378* (MO).

This robust species grows into great, shrub-like masses of intertwining and branching stems very similar to those of *M. frutex* of Bolivia and Peru. *Myoxanthus parvilabius* occurs at lower altitudes from the Guianas into lowland eastern Ecuador. The rosy-tan flowers are characterized by subulate petals and a proportionately small, thick lip with a broadly rounded, denticulate apex.

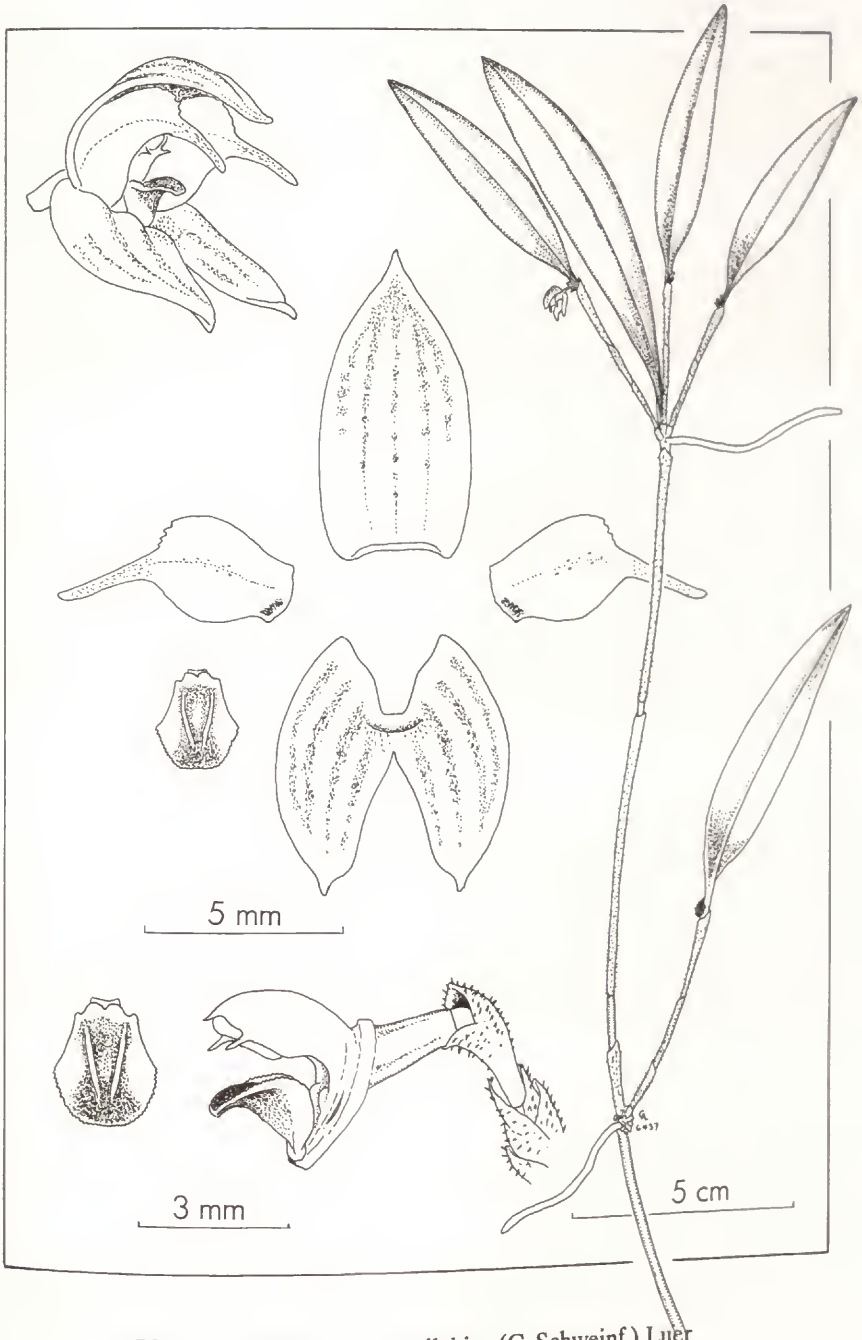


Plate 28. *Myoxanthus parvilabius* (C. Schweinf.) Luer

Myoxanthus priapus Luer, Phytologia 54: 386, 1983.

Ety.: Named for Priapus, the Greek mythological god of reproduction, in allusion to the callus of the lip.

Plant medium in size, epiphytic, very shortly repent to caespitose; roots coarse. Ramicauls slender, erect, 10-21 cm long, enclosed by 6-7 tubular, hispidulous sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, 6-12 cm long, 1-1.5 cm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, produced 1-3 simultaneously, at the apex of the ramicaul, the peduncles 3-4 mm long, enclosed by pubescent sheaths; floral bracts pubescent, 2-3 mm long; pedicels 2 mm long; ovary 1.5 mm long, densely short-pubescent; **sepals** purple, shortly pubescent externally, glabrous within, the dorsal sepal oblong, subacute, 6 mm long, 2.5 mm wide, the lateral sepals ovate, oblique, obtuse, concave, 5 mm long, 3 mm wide, connate and convex at the base above the mentum with the column-foot; **petals** yellow with a purple midvein, oblong in the lower half, abruptly contracted into a narrow, linear, semiterete, distal half, 4.5 mm long, 2 mm wide in the lower half; **lip** purple-black, oblong, 2.25 mm long, 1 mm wide, with a small pair of erect, uncinate, marginal lobes near the middle, rounded at the apex, the disc with a thick, erect, 0.5 mm tall, shallowly grooved callus above the base, and a pair of low, parallel carinae above the middle, the base subtruncate, with a pair of minute lobules, hinged on the end; **column** purple, stout, 2 mm long, longitudinally winged above the middle, the foot stout, concave, with a pair of marginal calli.

ECUADOR: Prov. of Loja: epiphytic in cloud forest east of Yangana, Altos de Numbala, alt. 2800-2900 m, June 1982, *D. D'Alessandro 195* (Holotype: SEL), C. Luer illustr. 8118. Prov. of Zamora-Chinchipe: Cerro Tapichalca between Yangana and Valladolid, alt. 2000 m, Aug. 1985, *D. D'Alessandro 484* (MO).
PERU: Dept. of Cajamarca: San Andrés de Cutervo, alt. 2400 m, 14 Mar. 1989, *C. Díaz, H. Beltrán & B. D'Achille 3267* (MO).

This species is known from the mountainous forests of southeastern Ecuador and northern Peru. It appears to be most similar to *M. georgei* that grows at a much lower altitude. *Myoxanthus priapus* is distinguished from all other species in the genus by the erect callus at the base of the lip. This last feature may be obscured in rehydrated, pressed flowers.

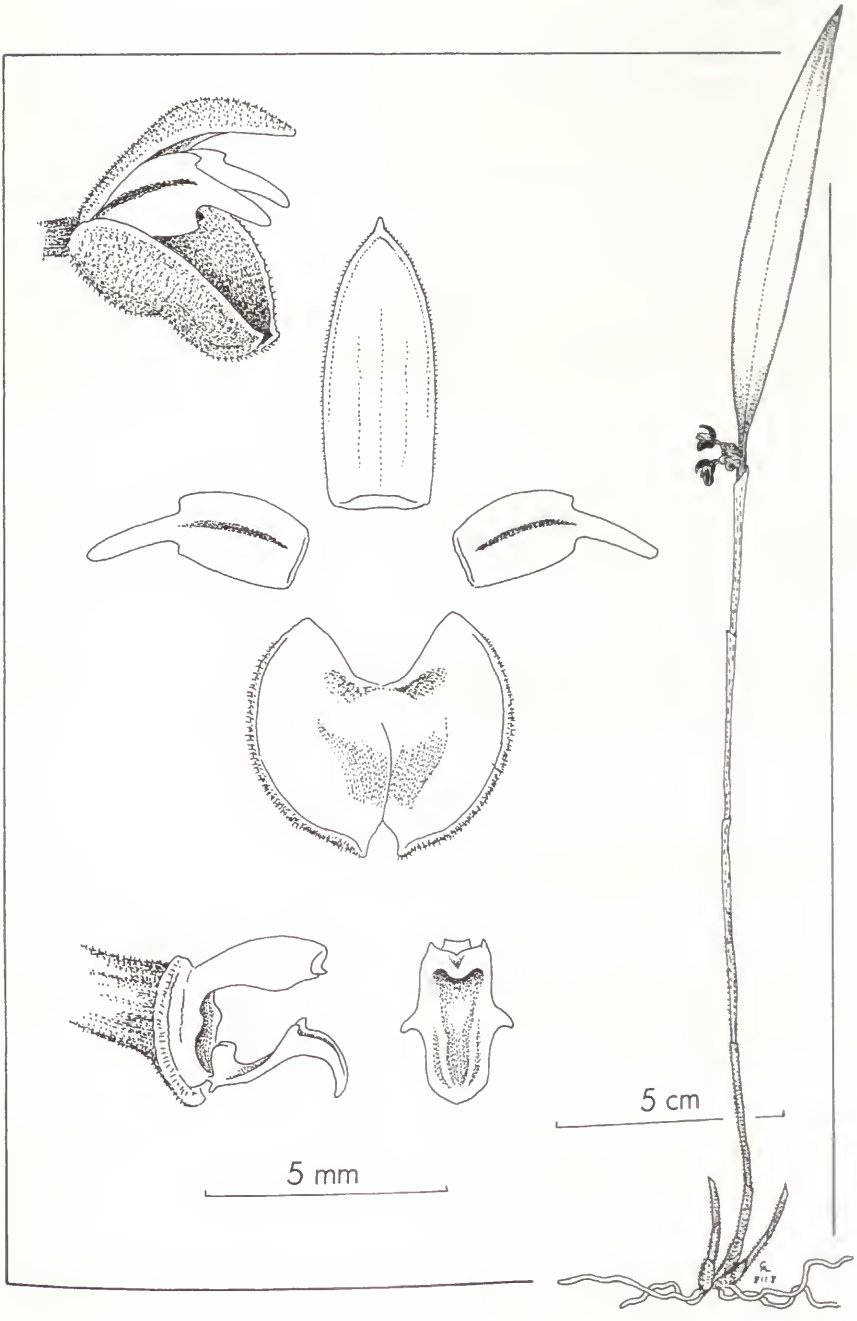


Plate 29. *Myoxanthus priapus* Luer

Myoxanthus pulvinatus (Barb. Rodr.) Luer, comb. nov.

Bas.: *Anathallis pulvinata* Barb. Rodr., Gen. Sp. Orchid. Nov. 2: 77, 1882.

Ety.: From the Latin *pulvinatus*, "cushion-shaped," referring to the disc of the lip.

Syn.: *Pleurothallis pulvinata* (Barb. Rodr.) Cogn., Fl. Bras. 3(4): 563, 1896,

Plant medium in size to large, epiphytic, probably shortly repent; roots coarse. Ramicauls ascending to erect, stout, 18-30 cm long, enclosed by 7-8 tubular sheaths, the lowermost transversely scabrous. **Leaf** erect, thickly coriaceous, elliptical, obtuse to rounded, 11-17 cm long, 3-4 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a fascicle of single, simultaneous, ivory white flowers, at the apex of the ramicaul, the peduncles 1-2 mm long; floral bracts inflated, sparsely pubescent-spiculate, 3 mm long; pedicels 3-4 mm long; ovary 3-4 mm long; **sepals** glabrous, thickly fleshy, the dorsal sepal oblong, obtuse, concave, 4.5 mm long, 2 mm wide, 5-veined, the lateral sepals connate at the base for 1 mm, ovate, oblique, obtuse, 3.75 mm long, 1.75 mm wide, each 4-veined; **petals** ovate, 3.5 mm long, 1.5 mm wide, the apex rounded, thickened, the margins microscopically cellular; **lip** white with rose margins, oblong-ovate, thick, 2.25 mm long, 1 mm wide, the lower half with thick, erect, rounded sides with minutely serrate calli progressing onto the apical half, the apical half oblong, obtusely short-acuminate, the disc covered from the base to the apex by a thick, papillose or subverrucose callus, the base subtruncate, hinged on the end; **column** stout, 2 mm long, the apex bidentate on each side, the anther rose, the foot stout, 1 mm long.

BRAZIL: Edo. Minas Geraës: Serra das Bicas, *B. Rodrigues s.n.* (?). Edo. Sâo Paulo: Campo Grande, *G. & G. Sâo Paulo 3272* (BR); Itú, Reserva Forestal Washington Luiz, road to Itú, 7 Mar. 1934, *A. Gehrt 31586* (AMES, NY, SP), C. Luer illustr. 15508.

This species is endemic in southern Brazil where it is apparently uncommon. I assume that the rhizome is shortly repent. No mention of the habit is made by either Rodrigues nor Cogniaux. The specimen I have examined consists of three stout ramicauls broken off from the rhizome, one with two roots. The bases of all the ramicauls, including the one illustrated by Rodrigues, cruve upward. The lowermost sheaths possess transverse, scabrous patches. The small, solitary, ivory white flowers are produced in profusion in a fascicle at the apex of the ramicaul. The sepals are fleshy and the petals are thickened at the apex. The lip is distinguished by broad, thick, rounded sides below the middle. The entire disc from the base to the apex is covered by a thick callus that is more or less like a mass of confluent blisters in the rehydrated state.

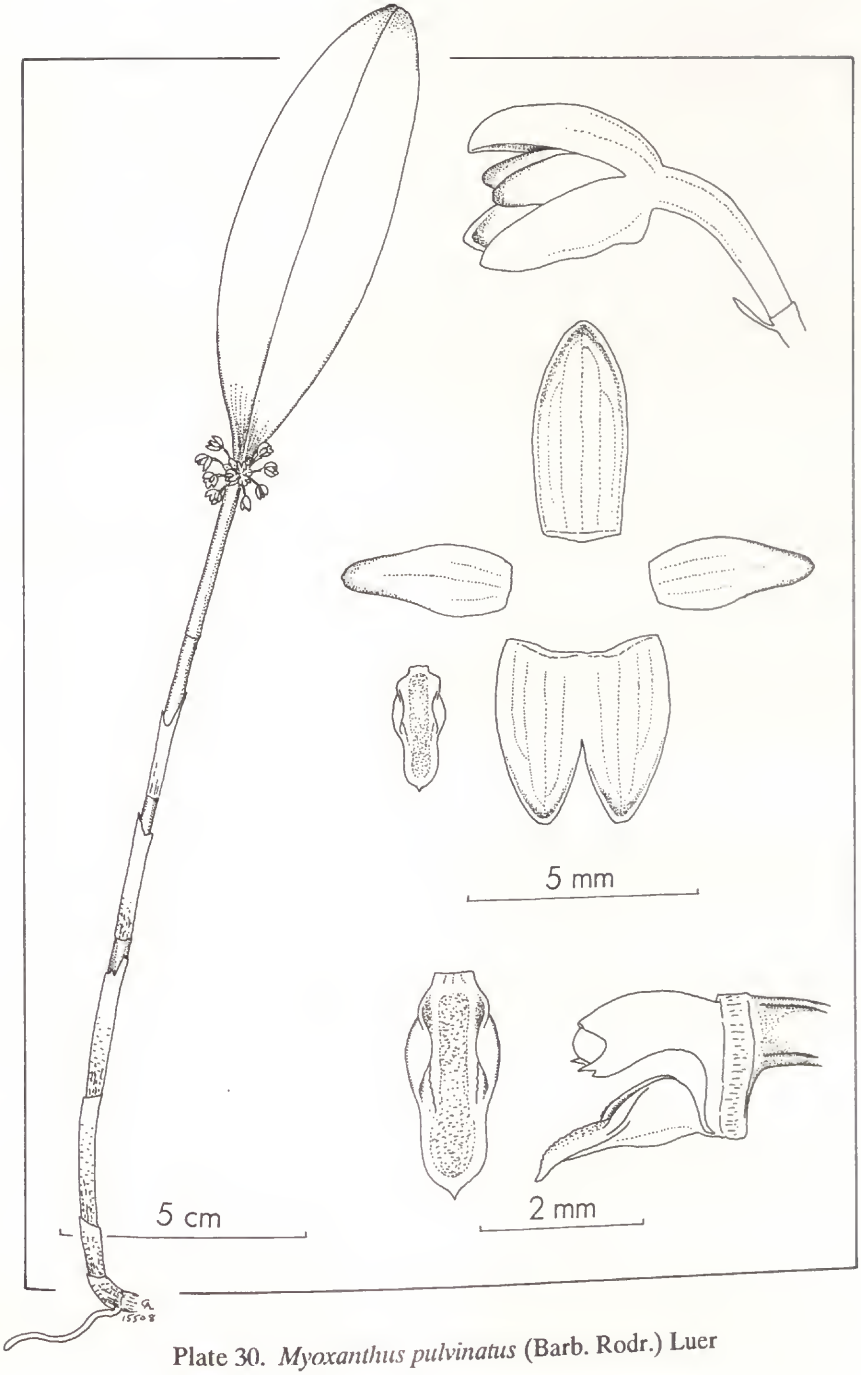


Plate 30. *Myoxanthus pulvinatus* (Barb. Rodr.) Luer

Myoxanthus punctatus (Barb. Rodr.) Luer, Selbyana 7: 49, 1982.

Bas.: *Chaetocephala punctata* Barb. Rodr., Gen. Spec. Orchid. Nov. 2: 38, 1882.

Ety.: From the Greek *punctatus*, "with little spots," referring to the sepals and petals.

Syn.: *Pleurothallis chaetocephala* Cogn., Fl. Bras. 3(4): 590, 1896.

Ety.: Named for the genus *Chaetocephala*, from the Greek *chaetocephale*, "with hair on the head," referring to the fringed anther-cap.

Plant medium in size to large, epiphytic, shortly repent, the rhizome stout, 1-1.5 cm long between ramicauls, the sheaths hispidous; roots coarse. Ramicauls ascending to erect, stout, 6-18 cm long, enclosed by 4-7 tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical-ovate, acute, 6-15 cm long, 1.5-2 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles 10 mm long, cellular-pubescent; floral bracts cellular-pubescent, 3 mm long; pedicels 3 mm long; ovary 4 mm long; **sepals** green or yellow, dotted with purple, olive externally, glabrous, the dorsal sepal oblong, obtuse, 8-10 mm long, 4 mm wide expanded, 7-veined, with the sides more or less revolute, the lateral sepals ovate, oblique, obtuse, convex, 8-9 mm long, 4.5 mm wide expanded, each 6-veined; **petals** green with purple spots, narrowly linear from a slightly widened base, the apex yellow and thickened, 7-9 mm long, 0.5 mm wide, 1 mm wide at the base; **lip** orange, suffused with purple at the apex and base, elliptical, thick, 6 mm long, 3 mm wide, the apical half verrucose with revolute margins, the lower half with low, erect, rounded margins, the disc with a low pair of parallel, verrucose calli on the middle, the under surface with a thick, keel-like callus, the base subtruncate, with a pair of lobules, hinged on the end; **column** greenish white, flecked with purple, stout, 4 mm long, with rounded wings above the middle, the foot stout 2 mm long, concave, with a pair of thick calli at the end, the upper margin of the anther fimbriate.

BRAZIL: Edo. Minas Geraës: epiphytic in dry forest along the river Parahybuna, alt. 670 m, *B. Rodrigues s.n.* (Holotype: ?); without locality, flowered in cultivation by H. H. Morgan at Myakka, Fla., 5 Jan. 1980, *C. Luer 4851* (SEL); without locality, obtained from Binot in Petropolis, flowered in cultivation by J. & L. Orchids, 5 May 1990, *C. Luer 14749* (MO).

This species is endemic in southern Brazil. It is not uncommon in living collections. It is distinguished by the repent habit, leaves somewhat longer than the ramicaul, very slender petals swollen at the apex, and a thick, verrucose lip with revolute margins.

Myoxanthus reymondii (Karst.) Luer, Selbyana 7: 49, 1982.

Bas.: *Duboisia reymondii* Karst., Allg. Gartenzeitung 15: 394, 1847.

Ety.: Dedicated to Dr. Du Bois Reymond, French physicist.

Syn.: *Dubois-Reymondia palpigera* Karst., Bot. Zeitung (Berlin) 6: 398, 1848.

Ety.: From the Latin *palpiger*, "bearing a feeler," in allusion to the clavate petals.

Syn.: *Pleurothallis reymondii* (Karst.) Reichb. f., Ann. Bot. Syst. 3: 520, 1852.

Syn.: *Humboldtia reymondii* (Karst.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis palpigera* (Karst.) Schltr., Repert. Spec. Nov. Regni Veg. Beih. 6: 63, 1919.

Plant medium in size to large, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls stout, erect, 10-30 cm long, enclosed by 5-9 tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly ovate, acute, 10-25 cm long, 1.2-2.2 cm wide, cuneate below into the subpe-

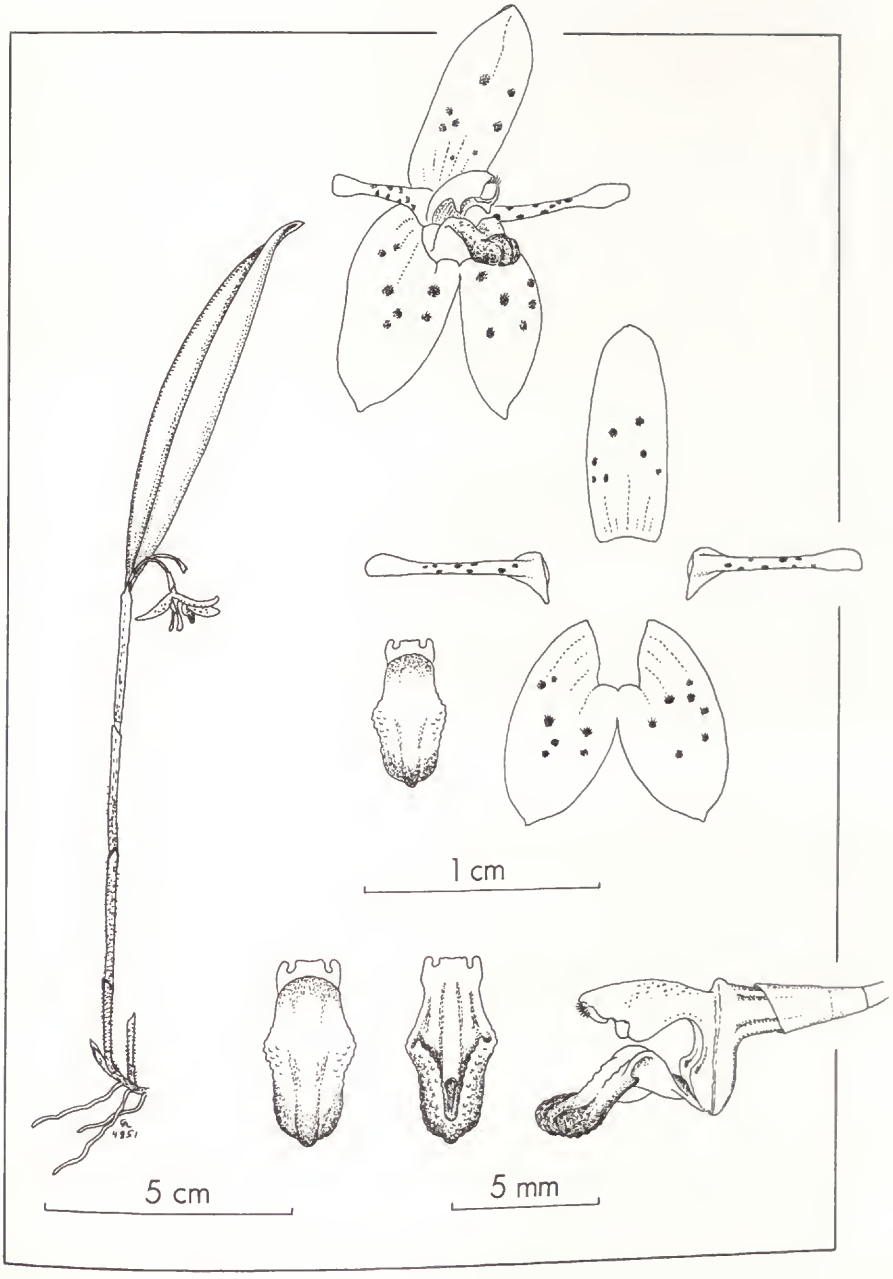
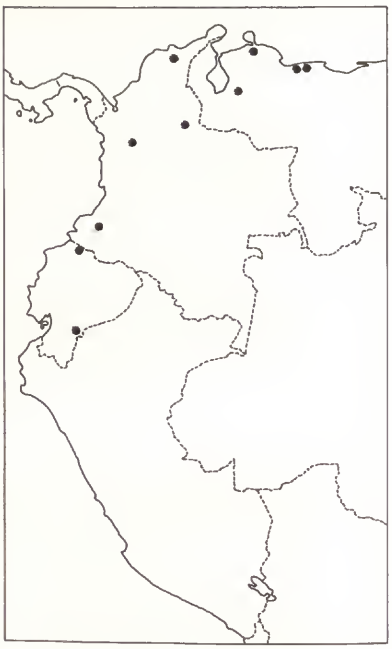


Plate 31. *Myoxanthus punctatus* (Barb. Rodr.) Luer

tiolate base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles 4-5 mm long, enclosed by pubescent sheaths 3-5 mm long; floral bracts pubescent, 4-5 mm long; pedicels 4-5 mm long; ovary 3 mm long, minutely pubescent; **sepals** purple-brown to yellowish or orange, heavily suffused with purple-brown, minutely verrucose within, shortly pubescent externally, the dorsal sepal slightly concave, ovate, obtuse, 7-8 mm long, 3.5-4 mm wide, 7-veined, the lateral sepals ovate, oblique, obtuse, more or less recurved, 6 mm long, 3-4 mm wide, each 5-veined, convex and pubescent at the base above the mentum with the column-foot; **petals** dotted with purple, subquadrate in the lower third with the margins obtusely angled, abruptly contracted into a narrow isthmus with revolute margins into a markedly thickened, deep purple apex 6 mm long, 2-2.5 mm wide above the base, 1.5 mm wide at the apex; **lip** yellow, orange or green, variously suffused with purple, oblong, revolute, 2.5-3 mm long expanded with fracturing, 1.5-3 mm wide, with a small, erect, acute lobule on either side below the middle, the disc with a pair of low, parallel calli, the base subtruncate, with a pair of minute lobules, hinged on the end; **column** yellow, spotted with purple, stout, 2.5 mm long, with broad, rounded wings above the middle, the foot stout 1.5 mm long, concave.



VENEZUELA: "Caracas," forest of Petaquire, alt. 6000 ft., 1 Dec. 1850, *H. Wagener s.n.* (Holotype: W); Edo. Aragua, near Colonia Tovar, 1854-5 *A. Fendler 1489* (AMES, K, MO); *Moritz s.n.* (W). Junquíto, Nov. 1953, *G. C. K. Dunsterville 155*; obtained from Dunsterville ca. 1977, flowered in cultivation by the Jesups in Bristol, CT, 22 May 1992, *C. Luer 16273* (MO). Edo. Falcon: Sierra de San Luis Montaña de Paraguariba, alt. 1300 m, 21 July 1967, *J. A. Steyermark 99333* (AMES). Edo. Trujillo: between Boconó and Guaramacal, alt. 2100-2300 m, 4 Sept. 1966, *J. A. Steyermark & M. Rabe 97314* (AMES).

COLOMBIA: Dept. of Antioquia: forest above Frontino, alt. 1900 m, 5 May 1983, *C. Luer, J. Luer, R. Escobar, E. Valencia & A. Pridgeon 9056* (SEL); Repressa Guatapé, May 1985, flowered in cultivation by R. Londoño, 20 Mar. 1989, *C. Luer 14316* (MO). Dept. of Cauca, El Tambo, alt. 1200 m, 20 Nov. 1939, *K. von Sneidern 2040* (G). La Capilla north of Popayán, alt. 1740 m, 24 May 1944, *E. P. Killip 38458* (AMES). Dept. of Magdelena: Santa Marta above Hda. Cincinnati, alt. 7100 ft., 2 Aug. 1946, *M. B. Foster 1339* (AMES); Sierra Nevada de Santa Marta, Quebrada Indiana, alt. 1820 m, 31 Aug. 1972, *J. H. Kirkbride 2020* (NY). Dept. of Norte de Santander: forest north of Villacaro, alt. 2400 m, 6 May 1982, *C. Luer, J. Luer, R. Escobar & D. Portillo 7732* (SEL).

ECUADOR: Prov. of Morona-Santiago: Cordillera del Condor, forest east of Guismé, alt. 1650 m, 20 Jan. 1989, *C. Luer, J. Luer, P. Jesup & A. Jesup 14076A* (MO). Prov. of Carchi: forest above Maldonado, alt. 2500 m, 26 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3391* (SEL).

This species is widely distributed through the Andes from Venezuela into Ecuador. Vegetatively it is similar to *M. ceratothallis*: large with a long, stout ramicaul bearing a long, narrow leaf. The sheaths are usually invested by dense covering of long, dark scales, but occasionally these are reduced to low, transverse scales. The sepals and petals are heavily marked with purple or brown. The petals are markedly clavate, reportedly acting as osmophores (Pridgeon, 1982). The lip is oblong and strongly arcuate with small, erect, lateral lobes below the middle and a pair of lobules at the base. The lip varies in width from 1.5 to 3 millimeters.

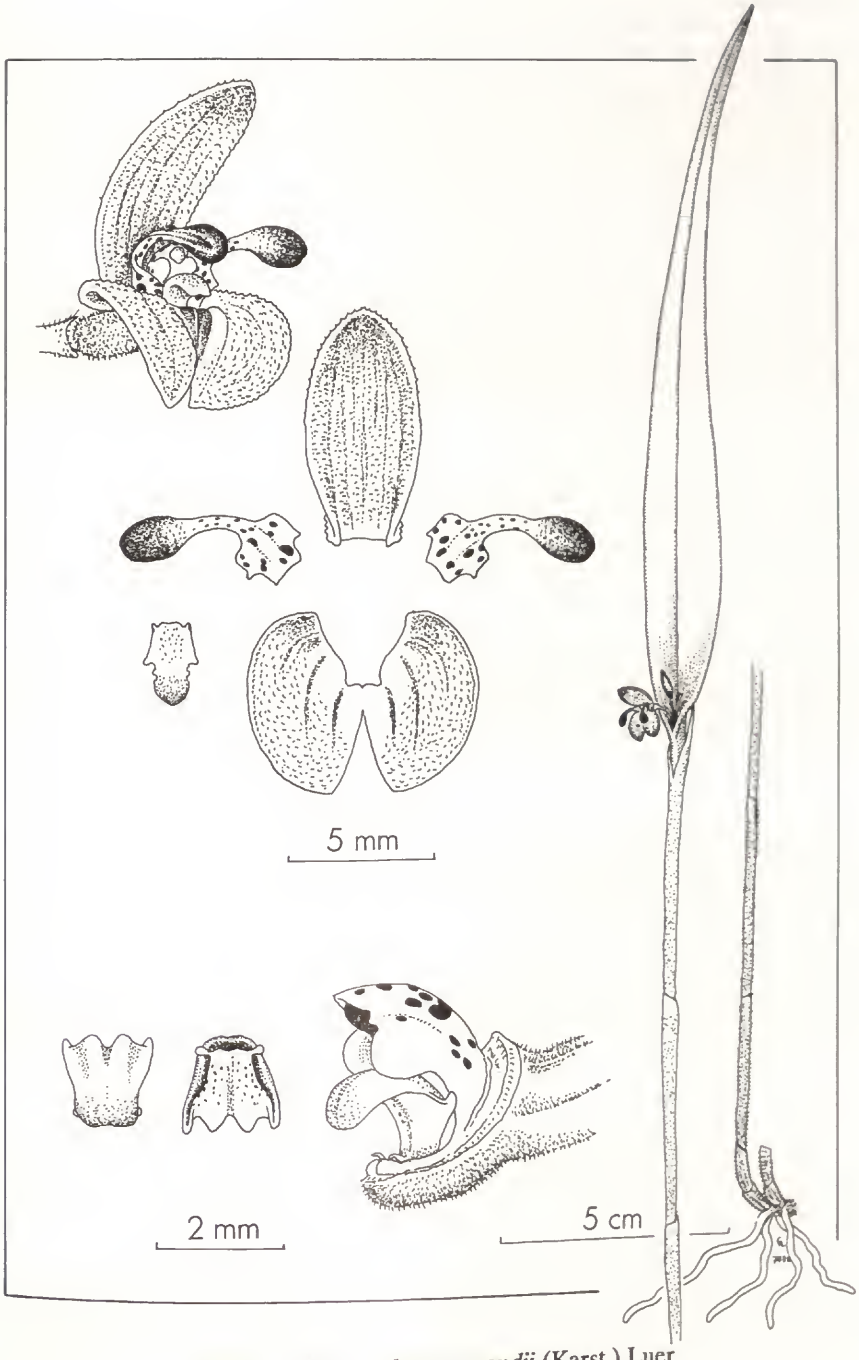


Plate 32. *Myoxanthus reymondii* (Karst.) Luer

Myoxanthus sarcodactylae (Luer) Luer, Selbyana 7: 49, 1982.

Bas.: *Pleurothallis sarcodactylae* Luer, Selbyana 1: 422, 1979.

Ety.: From the Greek *sarcodactylos*, "a fleshy finger," in reference to the thick floral parts.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 3-11 cm long, enclosed by 5-6 often shed, tubular, hispidulous sheaths. **Leaf** erect, coriaceous, narrowly ovate, acute, 8-12 cm long, 2-3 cm wide, cuneate below into a conduplicate petiole 1 cm long. **Inflorescence** a fascicle of single, successive flowers, produced 1 to 6 simultaneously, at the apex of the ramicaul, the peduncles 2 mm long; floral bracts pubescent, 2 mm long; pedicels 3 mm long, minutely pubescent; ovary 1 mm long, pubescent; **sepals** pale yellow-green, fleshy, lightly pubescent externally, the dorsal sepal oblong-ovate, rounded at the apex, 7 mm long, 3.5 mm wide, 5-veined, the lateral sepals ovate, oblique, obtuse, 6-7 mm long, 3 mm wide, each 3-veined, connate 1 mm at the base; **petals** ovate in the lower half, slightly narrowed above the middle into a yellow, terete, obtuse, distal half, 6 mm long, 2 mm wide in the lower half, with a few short hairs; **lip** white with a few purple spots, oblong, 2 mm long, 1 mm wide, the margins denticulate, the apex rounded, the sides rounded and erect below the middle, the disc with a pair of parallel, denticulate lamellae on the middle third, the base subtruncate, hinged beneath; **column** white, stout, semiterete, with broad wings and a pair of slender teeth at the apex, 2 mm long, 1.5 mm thick, the foot 1 mm long, concave.

ECUADOR: Prov. of Napo: epiphytic in forest 15 Km west of Tena, alt. 600 m, 26 July 1975, *C. Luer, G. Luer & S. Wilhelm 621* (Holotype: SEL; Isotype: K).

This species from the eastern lowlands of central Ecuador is known only from the original collection, but it grows readily in cultivation and numerous divisions were made. It seems most similar to the Mexican *M. octomerioides*, another fleshy-flowered species, but *P. sarcodactylae* is distinguished by the sepals pubescent externally, the petals thick and terete above the middle, a denticulate lip, and the column toothed at the apex.

Myoxanthus scandens (Ames) Luer, Selbyana 7: 49, 1982.

Bas.: *Pleurothallis scandens* Ames, Sched. Orchid. 5: 18, 1923.

Ety.: From the Latin *scandens*, "scandent," referring to the habit of the plant.

Syn.: *Pleurothallis pennellia* Luer, Selbyana 3: 160, 1976.

Ety.: From the Latin *pennellus*, "a small quill," in allusion to the appearance of the plant.

Plant medium to large in size but delicate, terrestrial to epiphytic, scandent, forming loose masses up to a meter long; roots, slender, from the bases of the ramicauls. Ramicauls slender, erect, flexible, prolific, up to 35 cm long below, forming fascicles of 2-4 slender ramicauls at the apex, 2-20 cm long, enclosed by 2-6 tubular, minutely hispid sheaths. **Leaf** erect in relationship to the ramicaul, coriaceous, narrowly elliptical, acute, 4-11 cm long, 3-6 mm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a congested fascicle of successive, single flowers, at the apex of a ramicaul, the flowers usually produced singly, the peduncles 2-4 mm

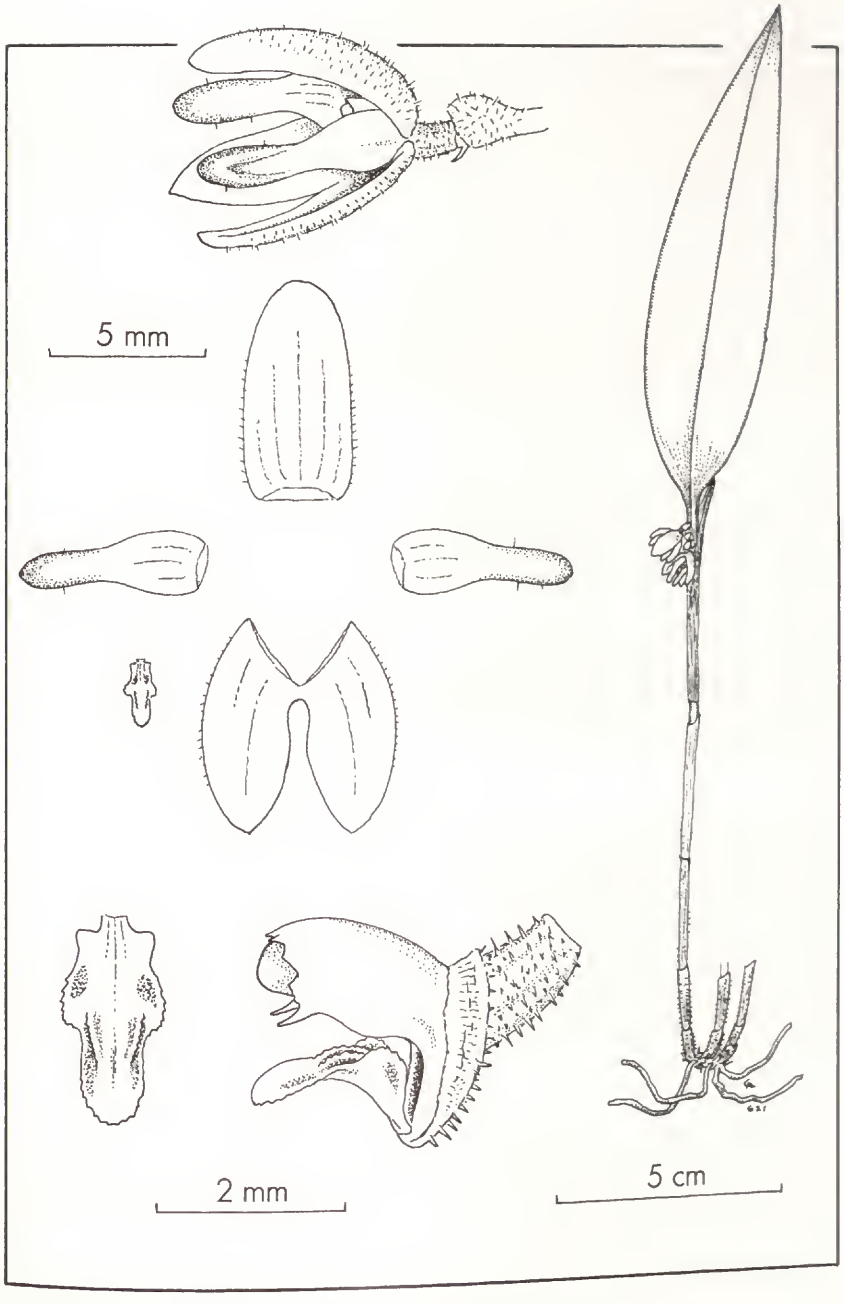


Plate 33. *Myoxanthus sarcodactylae* (Luer) Luer

long; floral bracts red-pubescent, 2-4 mm long; pedicel stout, 1-2 mm long; ovary 1.5-2 mm long, cellular-glandular; **sepals** translucent yellowish to greenish, mottled with purple, glabrous, the dorsal sepal ovate, subacute, 4-5.5 mm long, 2-2.5 mm wide, 3- to 5-veined, the lateral sepals ovate, oblique, subacute to obtuse, 4-5 mm long, 2 mm wide, each 3- to 4-veined, barely connate and minutely pubescent at the base; **petals** yellow, variously suffused with purple obovate in the lower half, more or less denticulate, contracted into a thickened apical half with revolute margins, acute, 4-5 mm long, 1.75-2 mm wide in the lower half; **lip** deep purple, oblong, more or less trilobed, 2 mm long, 1 mm wide, the apex broadly obtuse to rounded, minutely denticulate, the lateral lobes near the middle, erect, obtusely angled, the disc with a lightly bilobed callus at the base and a longitudinal pair of parallel lamellae from the lower third onto the upper third, the base subtruncate, with a minute pair of membranous lobules, hinged on the end; **column** white, sometimes suffused with purple, stout, semiterete, 2-2.5 mm long, with broad wings and a pair of teeth at the apex, the foot thick, 1 mm long, concave.

COSTA RICA: Prov. of Cartago: La Estrella, on forest ridges, without alt. or date, *C. H. Lankester & A. Sancho 401* (Holotype: AMES); near Pejivalle, alt. 900 m, 7 Feb. 1926, *P. C. Standley & S. Valerio 47013* (AMES); El Muñeco, Río Navarro, alt. 1400-1500 m, 6 Mar. 1926, *P. C. Standley & R. Torres 51331* (AMES); Peralta, alt. 2000 ft., May 1925, *C. H. Lankester 985* (AMES); south of Cartago, alt. 1900 m, 22 Sept. 1979, *C. Luer, J. Luer & K. Walter 4252* (K, SEL). Prov. of Alajuela: San Ramón, ca. 1867, *A. Endres 75* (W); San Ramón, 24 Aug. 1924, *A. M. Brenes 987* (NY). Without locality,*A. Endres 286* (W).
PANAMA: Prov. of Panama: Cerro Jefe, alt. ca. 1000 m, 15 Oct. 1967, *R. L. Dressler 3078* (MO, SEL); road between El Llano and Cartí, alt. 300 m, 4 Mar. 1976, *C. Luer, J. Luer, P. Taylor & R. Dressler 1018* (MO, SEL); same area, alt. 350-500 m, 22 Jan. 1977, *J. P. Folsom & J. Kauke 1407* (MO); same area, alt. 300 m, 8 Nov. 1984, *G. de Nevers & H. Herrera 4230* (MO).
ECUADOR: Prov. of Esmeraldas: between Lita and Alto Tambo, alt. 750-850 m, 19 May. 1987, *C. H. Dodson, H. van der Werff & W. Palacios 17125* (MO). Prov. of Morona-Santiago: Cor-dillera del Cutucú, epiphytic among the new road between Mendez and Morona, alt. 800 m, 5 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12642* (MO). Prov. of Napo: near Tena, 14 Oct. 1939, *E. Asplund 9312* (AMES); between Baeza and Lago Agrio, alt. 1700 m, 19 Oct. 1971, *B. MacBryde 737* (AMES); Río Salado, between Baeza and Lago Agrio, alt. 1300 m, 5 Oct. 1984, *A. Hirtz & A. Andreetta 1943* (MO); between Tena and Puerto Napo, alt. 580 m, 30 May 1986, *C. H. Dodson & T. A. Dodson 16468* (MO).

This species is another that was first collected and illustrated by Endres in Costa Rica over a century ago, long before its formal description. It is not uncommon in Central America and lowland eastern Ecuador. It has yet to be collected in intervening Colombia. Great masses of very thin, flexible stems and leaves sometimes collect in shrubby trees. Vegetatively it is similar to two heretofore unrecognized Andean species: *M. epibator* and *M. fimbriatus*. *Myoxanthus scandens* is distinguished by the low, lateral lobes of the lip, and non fimbriate petals. An immature plant was described as *Pleurothallis pennellia* before *M. scandens* was recognized to occur in Ecuador. In cultivation, this plant eventually became prolific, typical of *M. scandens*.

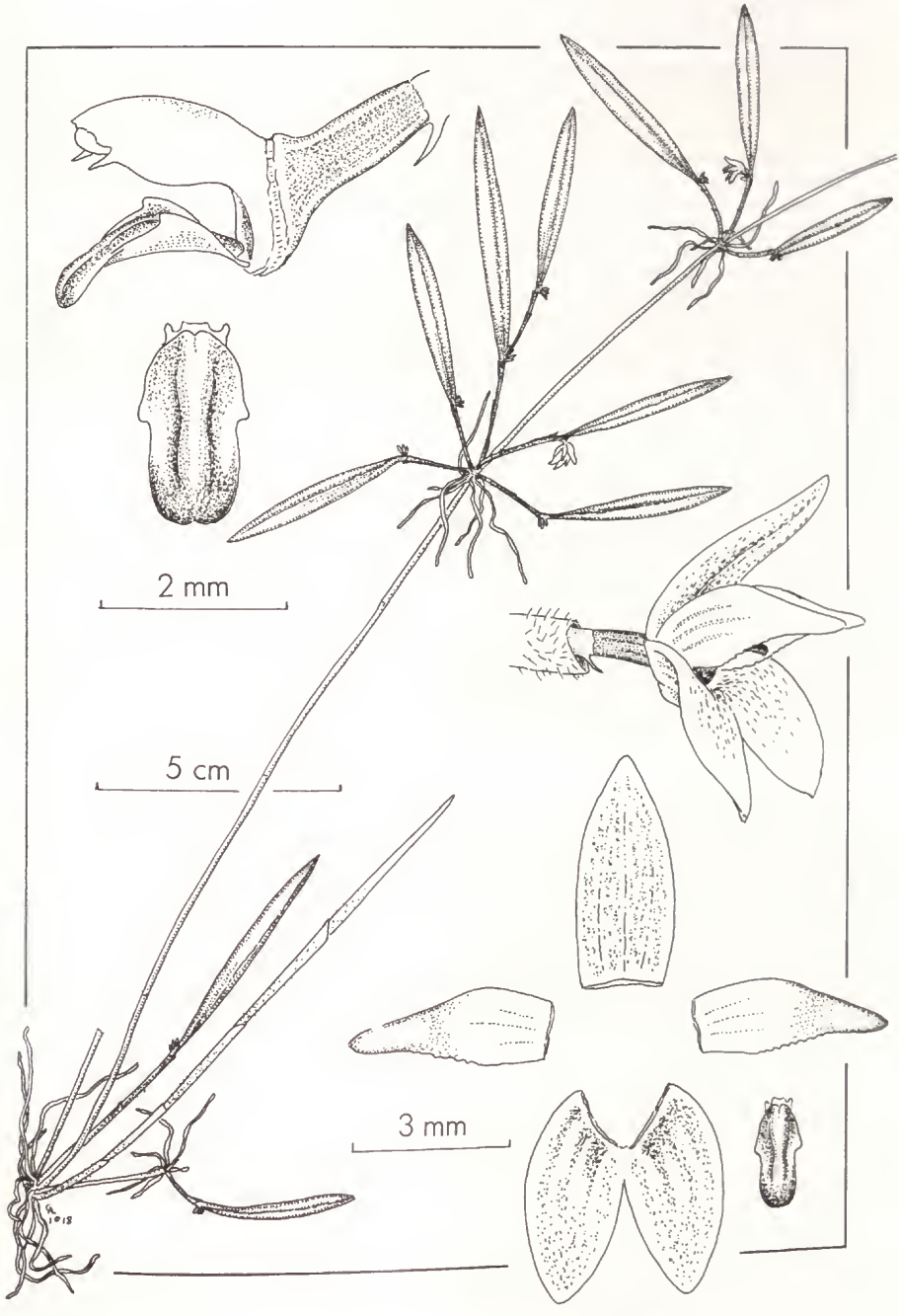


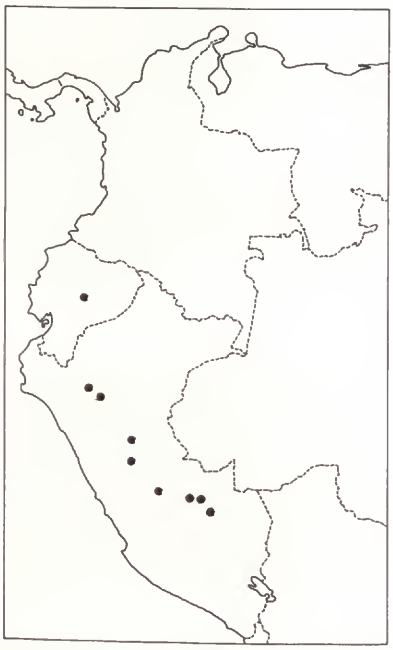
Plate 34. *Myoxanthus scandens* (Ames) Luer

Myoxanthus serripetalus (Krzl.) Luer, Selbyana 7: 51, 1982.

Bas.: *Pleurothallis serripetala* Krzl., Bot. Jahrb. Syst. 54(117): 23, 1916.

Ety.: From the Latin *serripetalus*, "with serrated petals," referring to the petals.

Plant large, epiphytic to terrestrial, caespitose; roots coarse. Ramicauls erect, stout, 15-45 cm long, enclosed by 4-6 long, tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, narrowly ovate, acute, 12-22 cm long, 2-4 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a fascicle of single, large, successive flowers, at the apex of the ramicaul, the peduncles 10 mm long, minutely pubescent; floral bracts inflated, 10 mm long; pedicels 7-8 mm long, minutely pubescent; ovary 5-6 mm long, pubescent; **sepals** rose to orange, heavily suffused with purple, fleshy, shortly pubescent externally, more or less verrucose within, the dorsal sepal ovate, the apices acute and diverging, 25-30 mm long, 8-9 mm wide, 7-veined, the lateral sepals ovate, oblique, acute, 23-28 mm long, 8-9 mm wide, each 6-veined, connate to about the middle; **petals** yellow, dotted with purple, verrucose, denticulate, obovate, abruptly contracted above the middle into a thickened, apiculate segment, 10-11 mm long, 3.5-4.5 mm wide, 1 mm wide at the apex; **lip** orange, suffused with purple, ovate, thick, 11-13 mm long, 4-5 mm wide, the margins fimbriate, the apical half rugose-verrucose, narrowly rounded, the lower half rugose between broadly rounded, erect, fringed margins, the disc with a pair of lamellae within the margins near the middle, the base subtruncate, with a pair of lobules, hinged on the end; **column** light green to light yellow, stout, semiterete, 9-13 mm long, with narrow wings above the middle, the foot stout, 3 mm long, concave, with a pair of thick calli near the middle, the upper margin of the anther fimbriate.



PERU: Dept. of Junín: Prov. of Huancayo, epiphytic in the valley of Pariahuanca between Panti and Rocchac, alt. 2400-2600 m, Mar. 1913, *A. Weberbauer 6538* (Holotype: destroyed at B), Dept. of Amazonas: Bongara, Lago Pomacochas, alt. 2100-2200 m, 19 Dec. 1964, *P. C. Hutchinson & J. K. Wright 4074* (AMES, US); Chachapoyas, Cerros Calla Calla above Leimebamba, alt. 2400 m, 6 Mar. 1964, *P. C. Hutchinson & D. Bennett 4560* (AMES, NY, UC, USM). Dept. of Apurimac: Andahuaylas, Quebrada Posocoi, lithophytic, alt. 2700 m, 6 Jan. 1950, *C. Vargas 8790* (AMES, MO). Dept. of Cuzco: Calca, between Lamai and Calca, alt. 1950 m, 7 Feb. 1943, *C. Vargas 3196* (AMES); Ollantaitambo, lithophytic, alt. 3000-3100 m, 26 Apr. 1925, *F. W. Pennell 13641* (AMES); Ollantaitambo mines, alt. 3100 m, 12 May 1968, *C. Vargas 20860* (AMES); Urubamba, Machu-Picchu Inca road, alt. 2500 m, 11 Apr. 1963, *C. Vargas 14372* (AMES); Urubamba valley, alt. 2800 m, Apr. 1932, *F. L. Herrera 3484* (AMES); Urubamba, between Río Calicanto and Chacchapata, alt. 2700-3000 m, 21 Nov. 1987, *F. Nuñez & E. Benzoa 8670* (MO, NY); Dept. of Huanuco: near Tingo Maria, collected by H. C. Dodson, flowered in cultivation 11 Oct. 1975, *C. Luer 066* (SEL). Dept. of Ayacucho: near Machu Picchu, collected by A. Righi, flowered in cultivation by G. C. K. Dunsterville at Hatillo, Ven., 28 July 1982, *C. Luer 8102* (SEL).

ECUADOR: Prov. of Pastaza: near Puyo, collected by Janet Kuhn, flowered in cultivation at J. & L. Orchids, Easton, CT., 20 Jan. 1976, *C. Luer 067* (SEL).

This distinctive, robust species, infrequent and local on the rocky, eastern slopes of the Andes of Peru and Ecuador, is perhaps the easiest species of the genus to identify. The comparatively huge, fleshy flower possesses petals with claw-like tips, and a large lip that is verrucose and fringed.

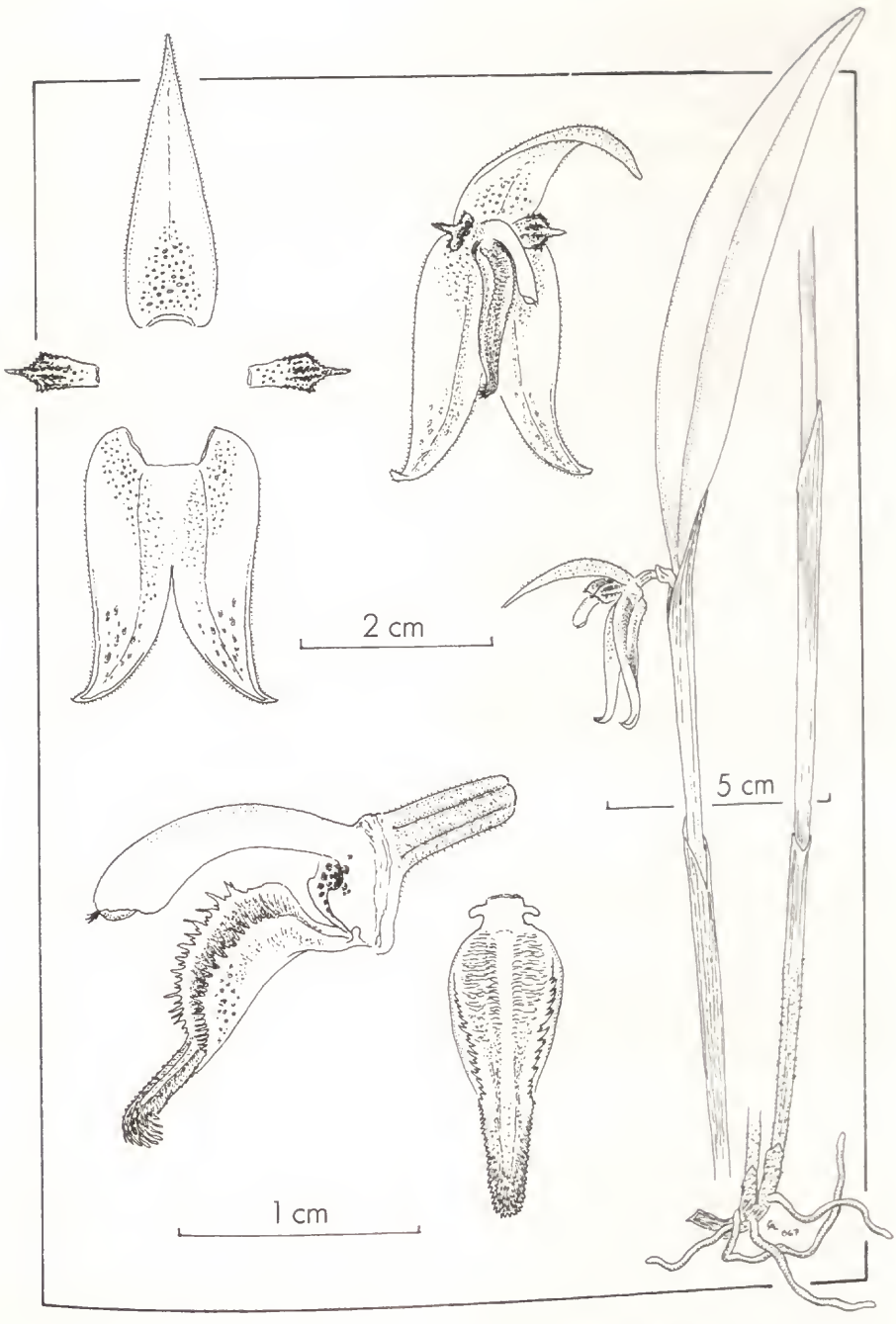


Plate 35. *Myoxanthus serripetalus* (Krzl.) Luer

Myoxanthus simplicicaulis (C. Schweinf.) Luer, Selbyana 7: 51, 1982.

Bas.: *Pleurothallis scandens* Ames var. *simplicicaulis* C. Schweinf., Bot. Mus. Leafl. 20: 16, 1962.

Ety.: From the Latin *simplicicaulis*, "with simple stems," referring to the non-scandent ramicauls.

Syn.: *Pleurothallis simplicicaulis* (C. Schweinf.) Luer, Selbyana 3: 388, 1977.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 10-20 cm long, enclosed by 4-5 long, tubular, hispidulous sheaths. **Leaf** erect, coriaceous, narrowly ovate, acute, 6-9 cm long, 7-9 mm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** a succession of single flowers, produced from a dense mass of old nodes and peduncles at the apex of the ramicaul, the peduncles 2-3 mm long; floral bracts infundibular, minutely pubescent, 3 mm long, enclosing pedicel; pedicel stout, minutely pubescent, 3 mm long; ovary cellular-glandular, 1.5 mm long; **sepals** translucent light yellow-green, flecked with purple-brown, shortly pubescent externally, the dorsal sepal ovate, acute, 5 mm long, 1.75 mm wide, 3-veined, the lateral sepals connate at the base, ovate, oblique, acute, 4.5 mm long, 2 mm wide, 2-veined; **petals** translucent yellow-green, obovate below the middle with minutely erose margins, narrowly triangular and thick above the middle, 4 mm long, 1.5 mm wide, 3-veined; **lip** yellow, suffused with brown, thick, suboblong-trilobed, 2 mm long, 1 mm wide, the middle lobe oblong with the apex rounded, minutely erose, the lateral lobes erect, obtuse, minutely erose, the disc with a pair of smooth, longitudinal calli below the middle to above the subtruncate base, hinged on the end; **column** green, stout, semiterete, 2 mm long, oblique at the apex with a pair of short teeth, the foot stout, 1 mm long, concave.

VENEZUELA: Edo. Bolívar: Apácara-tepui, Río Tirica, alt. 1700-1850 m, 23 June 1953, *J. A. Steyermark 75957* (Holotype: AMES, Isotype: NY); Auyan-tepui, alt. 1660-1800 m, 11 May 1964, *J. A. Steyermark 93726* (MO); Sororopan-tepui, alt. 1500-1700 m, 16 Dec. 1952, *B. Maguire & J. Wurdack 33836* (NY); Torano-tepui, Chimantá Massif, alt. 1760-1880 m, 1 Mar. 1955, *J. A. Steyermark & J. Wurdack 1210* (NY); El Dorado, Río Cuyuní, alt. 1300 m, 23 Dec. 1970, *J. A. Steyermark & G.C.K. Dunsterville 104375* (AMES); Meseta del Jaua, Cerro Jaua, alt. 1750-1800 m, 22 Feb. 1974, *J. A. Steyermark, V. C. Espinoza & C. Brewer-Carias 109357* (AMES). Terr. Fed. Amazonas: Atabapo, Cerro de Marahuaca, alt. 1225 m, 21 Feb. 1985, *R. L. Liesner 17782* (MO).
GUYANA: Upper Mazaruni river basin, Mt. Ayanganna, alt. 800 m, 27 July 1960, *S. S. Tillett, C. L. Tillett & R. Boyan 44938* (NY); Mt. Roraima, near end of Waruma trail, alt. 4200-4300 ft., 29 Mar. 1978, *J. F. Warrington et al., K.E.R.125* (K).

Although relatively frequent, this species is apparently restricted to the mountains and tepuis of southeastern Venezuela and adjacent Guyana. It was described by Schweinfurth as a variety of the prolific *M. scandens* of Central America. *Myoxanthus simplicicaulis* is distinguished by the strictly caespitose habit with slender ramicauls and narrow leaves. Although superficially similar, the small flowers are distinguished by the minutely pubescent sepals, and petals with a more acutely defined, thickened apical segment. The lips of the two species are similar.

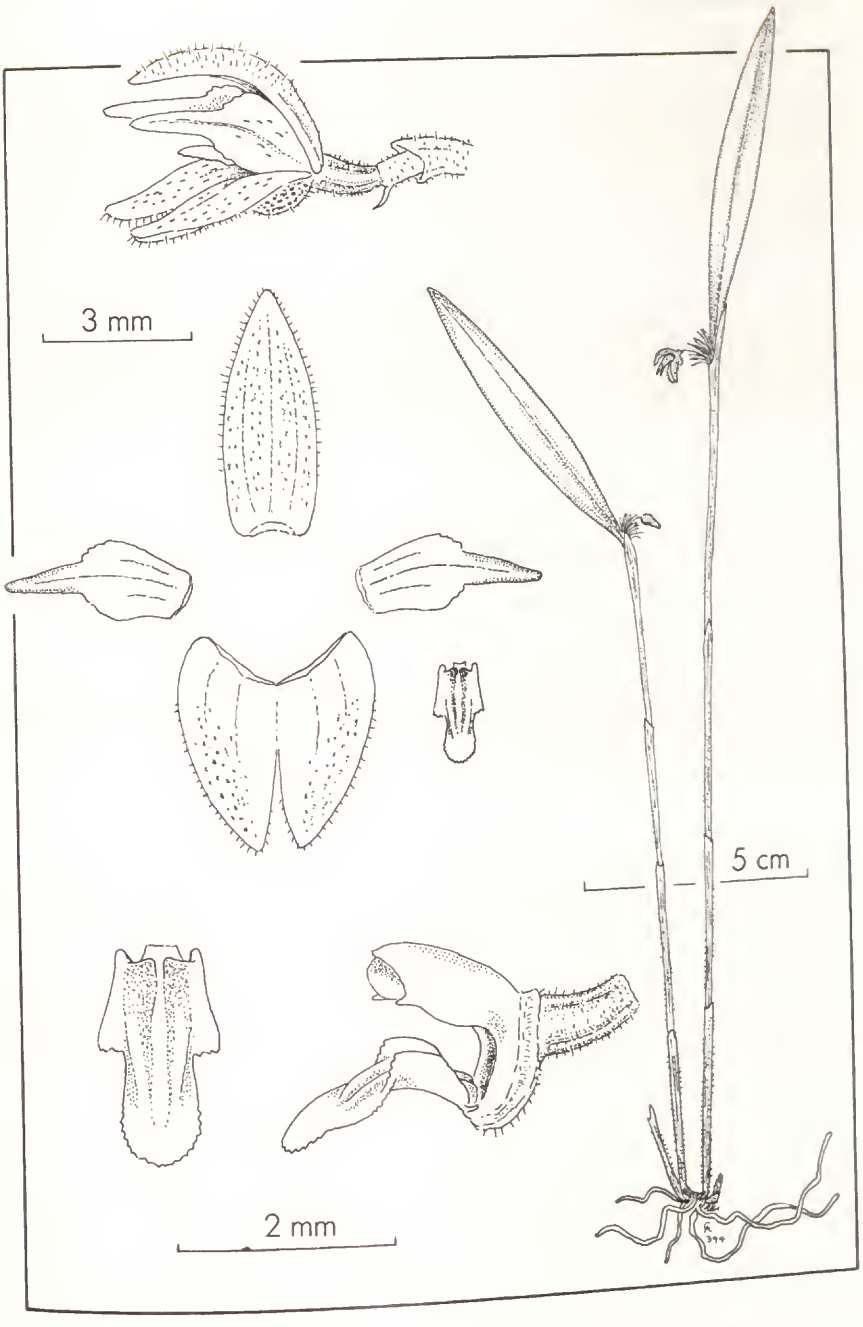


Plate 36. *Myoxanthus simplicicaulis* (C. Schweinf.) Luer

Myoxanthus speciosus (Luer) Luer, Selbyana 7: 51, 1982.

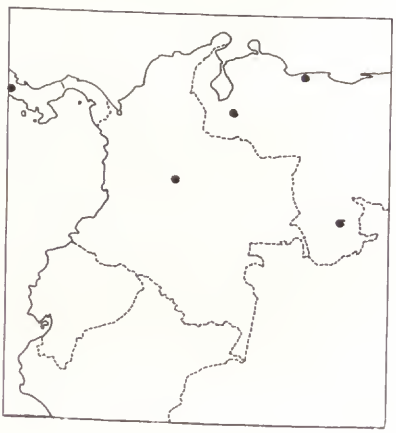
Bas.: *Pleurothallis speciosa* Luer, Selbyana 3: 392, 1977.

Ety.: From the Latin *speciosus*, "splendid," referring to the showy flowers.

Plant large, epiphytic, shortly repent to caespitose; roots slender. Ramicauls stout, purplish, erect, 11-30 cm long, enclosed by 4-8 long, tubular, hispidulous sheaths. **Leaf** erect, thickly coriaceous, dark green, suffused with purple, narrowly ovate, acute, 8-19 cm long, 2-4 cm wide, cuneate below into a petiole ca. 1 cm long. **Inflorescence** a congested fascicle of several, single, simultaneous flowers, produced from a dense mass of old nodes at the apex of the ramicaul, the peduncles 5-10 mm long; floral bracts infundibular, minutely spiculate, 2-5 mm long, enclosing the pedicel; pedicel stout, minutely pubescent, 3.5 mm long; ovary cellular-glandular, 2.5-3 mm long; **sepals** translucent light yellow or tan with red-purple stripes along the veins, with a sparse, red pubescence above the middle externally, the dorsal sepal ovate, acute, 9.5-12 mm long, 5 mm wide, 5-veined, the lateral sepals connate at the base, ovate, oblique, acute, 9-11 mm long, 4.5 mm wide, 4-veined; **petals** light yellow, veined in red-purple, ovate in the lower half, narrowed above, cellular-glandular and thickened at the acute apex, 10-11 mm long, 3.75 mm wide, 3-veined; **lip** yellow, mottled and striped with purple, thick, oblong, more or less lightly constricted above the middle, 5 mm long, 2 mm wide, the apex convex, obtuse, the tip more or less shortly acuminate, more or less cellular-erose, the disc shallowly sulcate longitudinally between smooth, rounded, longitudinal calli below the middle, the base subtruncate, hinged on the end; **column** green, stout, semiterete, 3 mm long, oblique at the apex without teeth, the foot stout, concave.

PANAMA: Prov. of Chiriquí: epiphytic in cloud forest above Guadalupe, alt. ca. 2000 m, 13 Sept. 1976, flowered in cultivation 5 Feb. 1977, *C. Luer & H. Butcher 1371* (Holotype: SEL).
COSTA RICA: Prov. of Puntarenas: Cordillera de Talamanca, Sierra Hills near Corazón de Jesus, alt. 2100 m, 19 May 1980, flowered in cultivation in Bern, Switzerland, Dec. 1989, *R. Jenny P-25* (MO).
COLOMBIA: Dept. of Cundinamarca: Quebrada del Chicó, Bogotá, alt. 2800-2900 m, 5 Sept. 1943, *M. Schneider 168* (AMES).
VENEZUELA: Dist. Fed.: Silla de Caracas, alt. 2200 m, 29 June 1969, *B. J. Manara 113* (VEN). Edo. Bolívar: Apácara-tepui, alt. 2450-2500 m, 21 June 195?, *J. A. Steyermark 75838, 75950* (VEN). Estado Merida: La Montaña study area south of La Montaña Teleferico station, upper montane rain forest, alt. 2450-2650 m, 4 Sept. 1987, *D. L. Kelly 8961* (K). Terr. Amazonas: Dept. Atabapo, Cerro Marahuaca, alt. 2560 m, 10 Oct. 1983, *J. A. Steyermark 129453* (MO); same locality, 13 Oct. 1988, *R. Liesner 24736, 25306* (MO).

This pretty species occurs locally from Central America into Venezuela. In the Flora of Venezuela it was identified as *P. exasperata* (Foldats 1970). Vegetatively it is similar to the others of Section *Myoxanthus* with long, stout ramicauls enclosed by exasperate sheaths and a fascicle of flowers at the base of the thickly coriaceous leaf. The broad sepals and petals are light yellow and prominently striped in red-purple. The lip is thick and oblong, and the column is toothless.



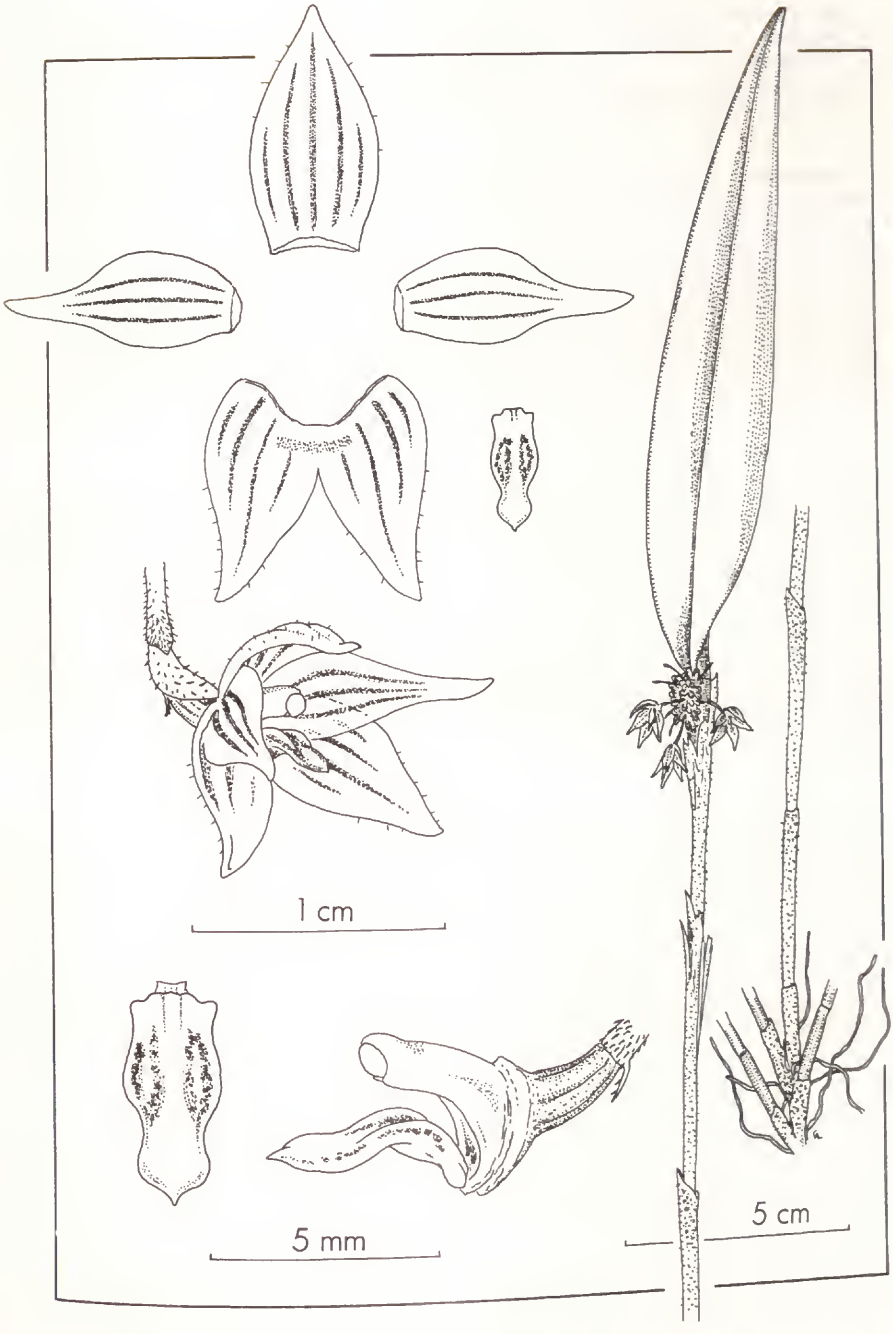


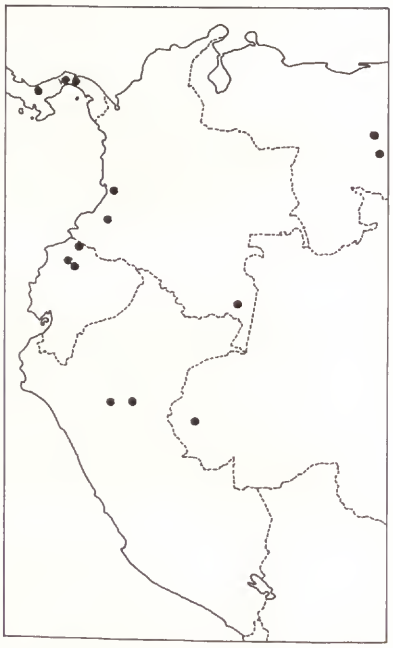
Plate 37. *Myoxanthus speciosus* (Luer) Luer

Myoxanthus trachychlamys (Schltr.) Luer, Selbyana 7: 51, 1982.

Bas.: *Pleurothallis trachychlamys* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 17: 23, 1922.
Ety.: From the Greek *trachychlamys*, "a shaggy cloak," referring to the rough sheaths of the ramicauls.

Syn.: *Pleurothallis cymbicalli* Pabst, Arq. Bot. Estado Sâo Paulo 3: 268, 1962.
Ety.: From the Latin *cymbiformis* and *callus*, "with a boat-shaped callus," referring to the callus of the lip.

Plant small to medium in size, epiphytic, repent, the rhizome slender, 0.5-4 cm long between ramicauls, enclosed by 2-3 hispidulous sheaths; roots slender from along the rhizome. Ramicauls slender, ascending, 3-12 cm long, enclosed by 3-5 close, tubular, hispidulous sheaths. **Leaf** erect, coriaceous, narrowly ovate, acute, 5-11 cm long, 0.7-1.5 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a congested, successively few-flowered fascicle of single flowers, at the apex of the ramicaul, the peduncles minutely pubescent, 2 mm long; floral bracts infundibular, minutely spiculate, 2 mm long, enclosing pedicel; pedicel stout, 1 mm long; ovary cellular glandular, 1-1.5 mm long; **sepals** translucent yellowish, greenish, to light tan, the dorsal sepal narrowly ovate, subacute, 5-7.5 mm long, 2 mm wide, 5-veined, the lateral essentially free, narrowly ovate, oblique, subacute, 5-7.5 mm long, 1.5-2 mm wide, 4-veined; **petals** pale yellow, ovate in the lower third, thickened with recurved margins and linear above, acute, 5-7 mm long, 1.5 mm wide in the lower third; **lip** yellow-white, oblong, 2-2.5 mm long, 1 mm wide, the apex obtuse, the margins each with a small, erect, acute lobe near the middle, the disc with a thick, obtuse, retrorse callus at the base, the base truncate, hinged on the end; **column** greenish white, stout, semiterete, with broad wings above the middle, toothed at the apex, 2 mm long, 1 mm wide, the foot thick, concave.



PANAMA: Prov. of Panama: on foothills east of Panama City, sea level, *C. W. Powell 215* (Neotype here designated: AMES); El Llano-Carti road, alt. 400 m, 17 Nov. 1974, *P.J.M. Maas, R. L. Dressler & H. Kennedy 1765* (NY). Prov. of Coclé; El Valle, Pavas, alt. 1600-2000 m, 24 Sept. 1922, *E. P. Killip 11677* (AMES); epiphytic in forest above El Valle, alt. 1000 m, 12 Oct. 1976, *C. Luer & H. Butcher 1250* (SEL).
VENEZUELA: Edo. Bolívar: Río Kamarakuni, alt. 400 m, 17 Mar. 1967, *J. A. Steyermark 97824* (AMES); epiphytic in forest along Río Icabaru, alt. ca. 1500 ft., Aug. 1962, *G. C. K. Dunsterville 722* (VEN).
COLOMBIA: Dept. of Amazonas: *R. E. Schultes 8584* (AMES, type of *Pleurothallis cymbicalli*). Dept. of Cauca: Alto del Polrento near Vejis, 30 Mar. 1876, *E. André 2695* (K); Dept. of Valle del Cauca: Buenaventura, forest around Las Juntas del Dagua, alt. 200-600 m, *F. C. Lehmann 7095* (AMES, K); same area, *F. C. Lehmann 8227* (W); near Popayán, flowered in cultivation by Amalia Lehmann de Sarria in Popayán, 25 July 1978, *C. Luer 3009* (SEL).
ECUADOR: Prov. of Carchi: forest between Tulcán and Maldonado, alt. 2050 m, 2 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9927* (MO); forest above Maldonado, alt. 1900 m, 15 Feb. 1989, *S. Dalström & T. Höijer 1233* (MO). Prov. of Pichincha: new road between Quito and Santo Domingo, alt. 2100 m, 31 Mar. 1984, *C. Luer, A. Hirtz, S. Dalström, T. Höijer & J. Kuijt 9825* (MO); cloud forest above Tandapi, alt. 2100 m, 31 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & X. Hirtz 11058* (MO); same area, alt. 1800 m, 20 June 1985, *C. & T. Dodson 15850* (AMES, K, MO).
PERU: Dept. of Loreto: Puerto Arturo, lower Río Huallaga below Yurimaguas, alt. 135 m, *E. P. Killip & A. C. Smith 27889* (AMES, US). Dept. of San Martin: Fundo La Campiña, Río Huallaga beloe Tocache Nuevo, 3 Sept. 1969, *J. Schuncke 3394* (US); Mariscal, Cáceres, Tocache Nuevo, alt. 500-600 m, 5 May 1975, *J. Schuncke 8377* (G, MO).
BRAZIL: Edo. do Acre, Cruzeiro do Sul, Rio Juruá, 3 Nov. 1966, *G. T. Prance, B. S. Pena & F. J. Ramos 2980* (K, NY).

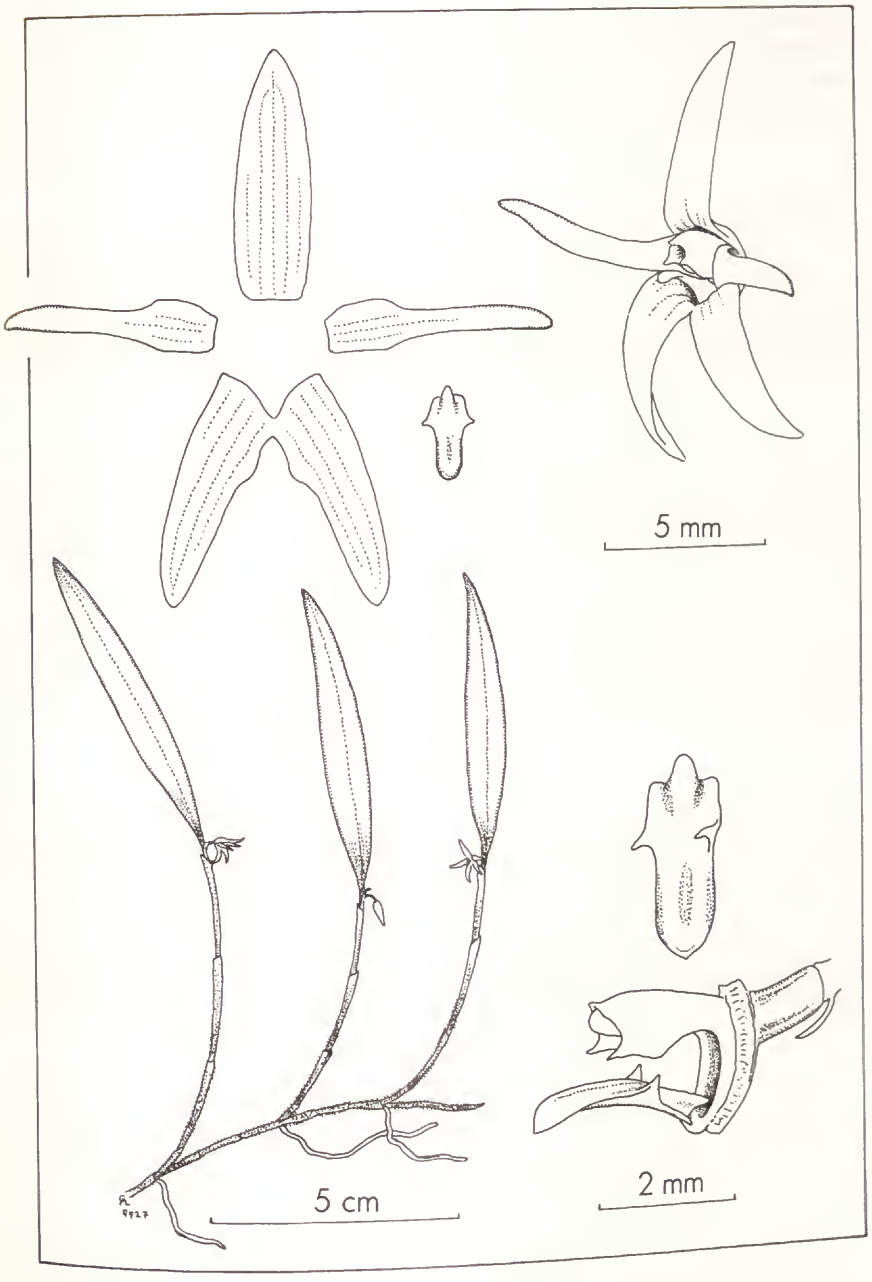


Plate 38. *Myoxanthus trachychlamys* (Schltr.) Luer

This species is relatively frequent and widely distributed from Central America through the Andes into Amazonian Brazil adjacent to Peru. It is recognized by the long-creeping rhizome with ascending ramicauls with usually longer, narrow leaves. The single flowers are produced intermittently. Most distinctive is the oblong lip with a short, sharp lobe on either side near the middle, and a large, thick, obtuse, retrorse callus at the base.

Myoxanthus uxorius (Luer) Luer, Selbyana 7: 51, 1982.

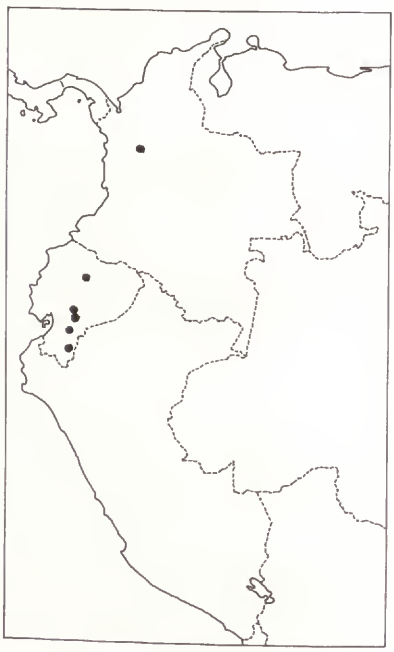
Bas.: *Pleurothallis uxoria* Luer, Selbyana 5: 186, 1979.

Ety.: From the Latin *uxorius*, "of the wife," in honor of Jane Luer who first discovered this species.

Plant large, epiphytic, shortly repent to caespitose, more or less forming rosettes; roots coarse. Ramicauls stout, purplish, erect, 20-35 cm long, mostly enclosed by 6-10 tubular sheaths, the lower sheaths pubescent-scabrous. **Leaf** erect, rigidly coriaceous, dark green, suffused with purple, narrowly ovate, long-attenuate, acute, 15-23 cm long, 1-1.2 cm wide, the margins revolute, cuneate below into the subpetiolate base. **Inflorescence** a congested fascicle of single, successive flowers, produced from the ramicaul at the base of the leaf; peduncle 2-3 mm long; floral bract sparsely pubescent, 4-5 mm long, enclosing pedicel; pedicel stout, 4 mm long; ovary cellular-glandular, 3 mm long; **sepals** yellow, glabrous, the dorsal sepal ovate, subacute, 8.5 mm long, 4.5 mm wide, 3-veined, the lateral sepals connate at the base, ovate, oblique, obtuse, 6 mm long, 4 mm wide, 3-veined; **petals** light yellow, oblong in the lower half, terete above, 7 mm long, 3 mm wide, 3-veined, the apex dark yellow, narrowly rounded, 1 mm wide; **lip** yellow, suffused with brown, obovate-pyriform, arcuate, convex above the middle, 5 mm long, 3 mm wide, the apex broadly rounded, lightly sulcate, the disc with a pair of thick smooth, rounded calli below the middle, the base subtruncate, bilobulate, hinged on the end; **column** green, stout, semiterete, 3 mm long, with oblique, antrorse wings, the foot equally long, stout, deeply concave.

ECUADOR: Prov. of Zamora-Chinchipe: epiphytic in cloud forest east of the pass between Loja and Zamora, alt. 2500 m, 11 Feb. 1978, *C. Luer, J. Luer & M. Portilla 2533* (Holotype: SEL); along the new road between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13609* (MO); above Valladolid, alt. 2000 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & D. D'Alessandro 9624* (MO). Prov. of Loja: cloud forest above Yangana north of the pass, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10861* (MO). Prov. of Morona-Santiago: east of the pass east of Sigsig, alt. 2700 m, *C. Luer, A. Hirtz, W. Flores, A, Andreetta & W. Teague 13364* (MO); forest north of Gualaquiza, alt. 1800 m, 31 Jan. 1989, *S. Dalström & T. Höijer 1213* (MO). Prov. of Napo: above Baeza, alt. 1900 m, Mar. 1984, *A. Hirtz 1694* (MO).

COLOMBIA: Dept. of Antioquia: El Retiro, above Colomborquídeas, collected by W. Teague, flowered in cultivation in San Francisco, *W. Teague s.n.* (MO).



This species occurs frequently in the mountains of southeastern Ecuador. Vegetatively it is distinct in the tall ramicauls and long, narrow leaves with revolute margins. The yellow, glabrous flowers are produced singly at the base of the leaf. The sepals are broad and petals are terete above the middle. The pyriform lip is arcuate.

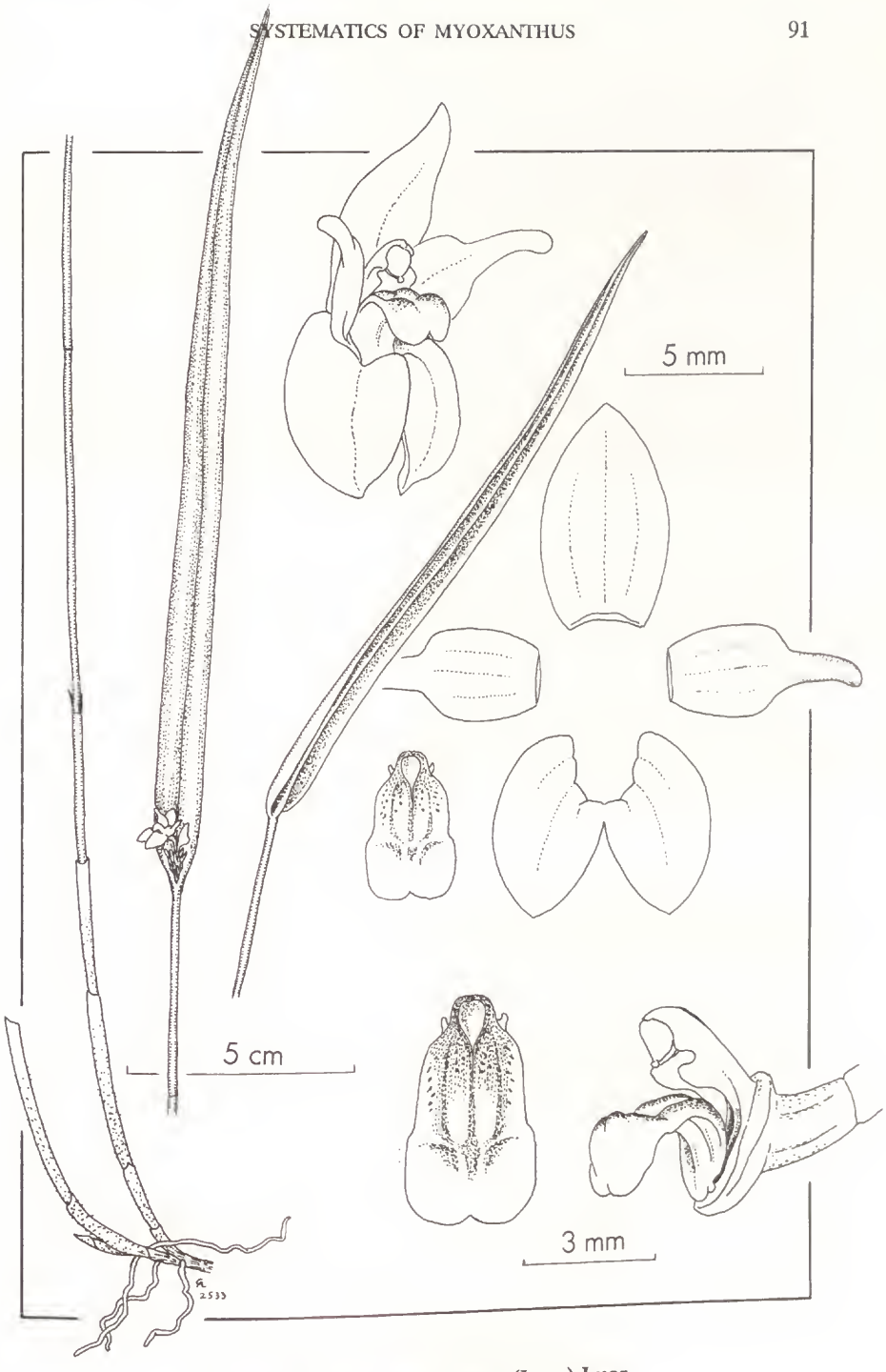


Plate 39. *Myoxanthus uxorius* (Luer) Luer

Myoxanthus xiphion Luer, Selbyana 7: 51, 1982.

Ety.: From the Latin *xiphion*, "a little sword," referring to the shape of the leaves.

Plant medium in size, epiphytic, densely caespitose; roots coarse. Ramicauls slender, erect, 7-19 cm long, enclosed by 3 tubular, hispidulous, disintegrating sheaths. **Leaf** erect, coriaceous, narrowly ovate, acute, 5-12 cm long, 0.7-1.1 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a succession of solitary flowers produced from an aggregation of nodes at the apex of the ramicaul; peduncles 2-3 mm long; floral bracts pubescent, 4 mm long, enclosing pedicel; pedicel stout, 4 mm long; ovary puberulent, 1 mm long; **sepals** brown, cellular-pubescent externally, the laterals shortly pubescent internally, the dorsal sepal free, ovate, acute, 5 mm long, 2 mm wide, 5-veined, the lateral sepals connate at the base, ovate, oblique, acute, 4 mm long, 2 mm wide, 2-veined; **petals** yellow, with 3 purple veins, subquadrate in the lower half, 3-lobed just above the middle, abruptly contracted into a terete middle lobe 1.5 mm long, the lateral lobules acute, antrorse, minutely denticulate, the petal 4 mm long, 1.75 mm wide; **lip** dark purple with yellow-white margins, thick, oblong, lightly arcuate, 1.75 mm long, 1 mm wide, the apex subtruncate, obtuse, the sides with an erect, short, acute angle near the middle, the disc with smooth, rounded, bilobed callus above the truncate base, hinged on the end; **column** green, stout, semiterete, longitudinally winged, 2 mm long, the foot stout, concave, 0.5 mm long.

ECUADOR: Prov. of Napo: epiphytic in wet forest south of Baeza, alt. 1500 m, 11 Aug. 1978, *C. Luer, J. Luer, A. Andreetta & A. Hirtz 3276* (Holotype: SEL); new road to Coca, alt. 1100 m, 22 Feb. 1982, *C. Luer & A. Hirtz 6853* (SEL); forest around the Bermejo oil fields north of Lumbaqui, alt. 850 m, 9 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11746* (MO). Prov. of Morona-Santiago: Cordillera del Condor, east of Guismé, alt. 1650 m, 20 Jan. 1989, *C. Luer, J. Luer, P. Jesup & A. Jesup 14025* (MO).

This small species occurs locally in eastern Ecuador. Vegetatively it is similar to the others of Section *Myoxanthus* with slender ramicauls. The scabrous sheaths are usually shed early. A small, brown, minutely pubescent flower is produced successively from the node at the base of the narrowly ovate leaf. The petals are three-lobed near the middle, the middle lobe narrowly terete, and the lateral lobes acute and denticulate. The oblong lip is arcuate with a pair of acute, retrorse, marginal angles near the middle.

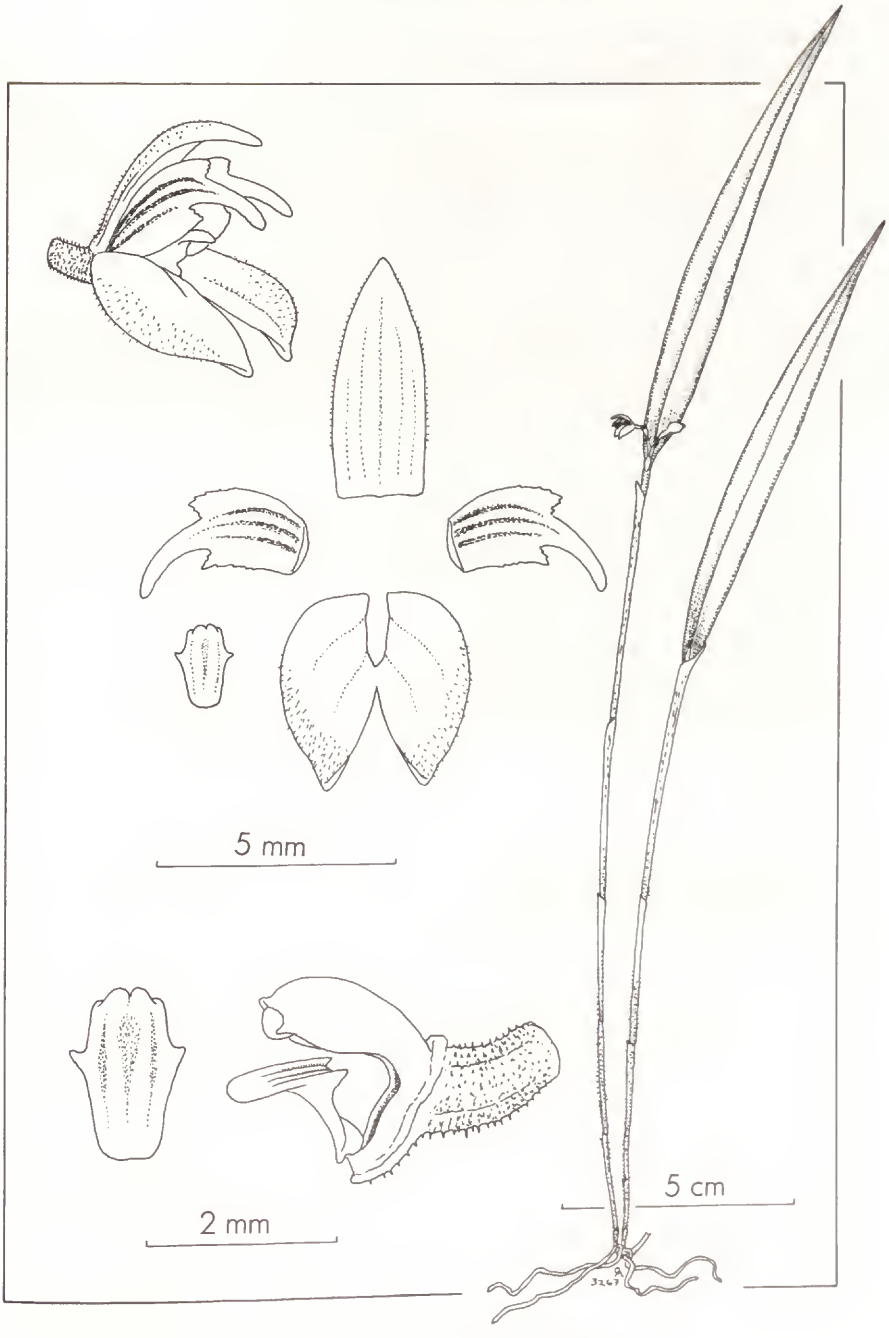


Plate 40. *Myoxanthus xiphion* Luer

Myoxanthus balaeniceps (Luer & Dressler) comb. nov.

Bas.: *Pleurothallis balaeniceps* Luer & Dressler, Orquideología 16: 47, 1986.

Ety.: From the Latin *balaeniceps*, "whale-headed," in allusion to the appearance of the flower.

Plant medium in size to large, epiphytic, shortly repent, the rhizome stout, 1-2 cm long between ramicauls, with fragmented sheaths; roots coarse. Ramicauls stout, ascending, 5-7.5 cm long, enclosed by 3 loose, imbricating, tubular, often fragmented sheaths. **Leaf** erect, thickly coriaceous, elliptical, subacute, 10-17 cm long, 3-5 cm wide, cuneate below into the conduplicate, sessile base. **Inflorescence** a single, non-resupinate flower emerging from any of the lower nodes on the ramicaul or the rhizome, the peduncles 5 mm long, pubescent, subtended by a bract equally long; floral bracts inflated, 10 mm long, pubescent; pedicels 4-5 mm long, pubescent; ovary 1 mm long, 4 mm broad, densely pubescent; **sepals** dark purple, fleshy, densely short-pubescent externally with stellate trichomes, rugose-verrucose within, the middle sepal obovate, narrowed in the basal third, acute, acuminate, 36 mm long, 9 mm wide, the apex adherent within the apex of the synsepal, connate to the lateral sepal for 12 mm, the lateral sepals connate into an obovate, obtuse, deeply concave synsepal, 35 mm long, 22 mm wide unexpanded; **petals** purple, the inner surface with tall, laminate verrucae, fleshy, elliptical, acute, 14 mm long, 6 mm wide, the inner surfaces of the petals interdigitating anterior to the column; **lip** dark red-purple, oblong-trilobed, 7.5 mm long, 3.5 mm wide, the apical lobe rounded, verrucose, the lateral lobes erect, low, oblong, subacute, antrorse, near the middle, the disc transversely rugose between a pair of intramarginal lamellae from the bases of the lateral lobes, the base with a tall, thick lamella, subtruncate, hinged on the end; **column** red, stout, semiterete, 5 mm long, minutely verrucose, toothed at the apex, the foot stout, 3 mm long, concave.

PANAMA: Prov. of Veraguas: epiphytic in cloud forest on Cerro Arizona above Escuela Alto de Piedra, west of Santa Fé, alt. 850-950 m, 5 June 1982, *R. L. Dressler 6063* (Holotype: MO), flowered in cultivation 23 May 1984, C. Luer illustr. 9488.

This monstrous species discovered in Panama by R. L. Dressler is obviously closely allied to *M. lappiformis*, but it is readily distinguished by the flowers of twice the dimensions (four times the size); the obovate, acuminate middle sepal connate basally to the synsepal for the lower third, and adherent at the tip; petals with processes that interdigitate in front of the column; and a lip with a tall, longitudinal lamella on the base.

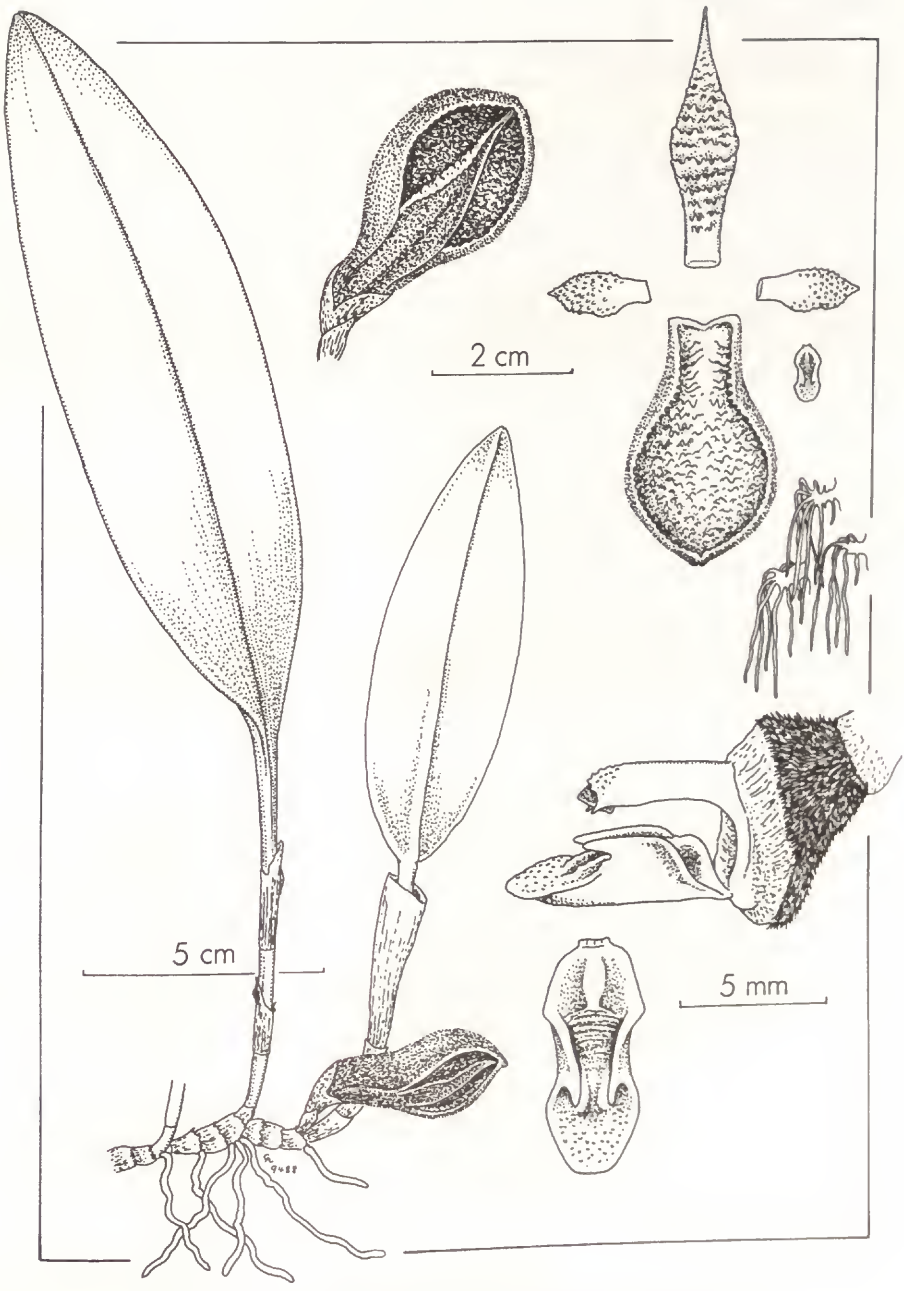


Plate 41. *Myoxanthus balaeniceps* (Luer & Dressler) Luer

Myoxanthus lappiformis (Heller & L. O. Wms.) Luer, Monogr. Syst. Bot. 15: 38, 1986.

Bas.: *Pleurothallis lappiformis* Heller & L. O. Wms., Fieldiana, Bot. 31: 42, 1964.
Ety.: From the Latin *lappiformis*, "like a bur," in allusion to the appearance of the flower.

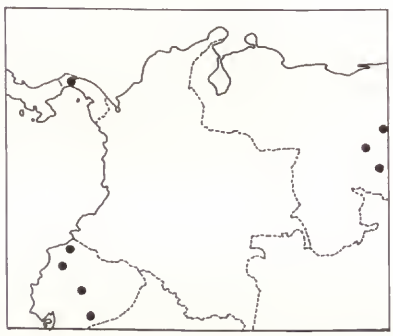
Plant medium in size to large, epiphytic, shortly repent, the rhizome stout, 1-1.5 cm long between ramicauls, with fragmented sheaths; roots coarse. Ramicauls stout, ascending, 1-5 cm long, enclosed by 3 loose, imbricating, tubular, often fragmented sheaths. **Leaf** erect, thickly coriaceous, narrowly ovate, acute, 10-13 cm long, 3-3.5 cm wide, cuneate below into the conduplicate, sessile base. **Inflorescence** a single, non-resupinate flower emerging from any of the lower nodes on the ramicaul or rhizome, the peduncles 3 mm long, pubescent, subtended by a bract equally long; floral bracts inflated, 7 mm long, pubescent; pedicels 2 mm long, pubescent; ovary 3 mm long, densely pubescent; **sepals** dark purple, fleshy, densely long-pubescent externally, rugose-verrucose within, the middle sepal narrowly triangular, acute, 11-16 mm long, 3 mm wide, the apex adherent within the apex of the synsepal, the lateral sepals connate into an obovate, obtuse, concave synsepal, 14-19 mm long, 7-13 mm wide; **petals** purple, verrucose, fleshy, oblong, acute, 7-9 mm long, 2 mm wide; **lip** dark red-purple, ovate-trilobed, 5.5 mm long, 3 mm wide, the apical lobe rounded, denticulate, verrucose, the lateral lobes erect, low, oblong, obtuse, near the middle, the disc transversely rugose between a pair of intramarginal, verrucose lamellae from the bases of the lateral lobes, the base subtruncate, hinged on the end; **column** red, stout, semiterete, 4 mm long, toothed at the apex, the foot stout, 2 mm long, the anther with hairs on the upper margin.

NICARAGUA: Dept. of Chontales: epiphytic at Pistacho Peak near Babilonia Mine, alt. 650 m, July 1962, *A. Heller 6620* (Holotype: F).
PANAMA: Prov. of Panama: epiphytic between Llano and Cartí, alt. 300 m, 3 Mar. 1976, *C. Luer & R. Dressler 1034* (SEL).
ECUADOR: Without collection data, *B. Roezl* (W). Prov. of Esmeraldas: west of Lita toward San Lorenzo: alt. 800 m, 20 July 1991, *C. H. Dodson 18655* (MO). Prov. of Pichincha: west of Santo Domingo, alt. 550 m, 22 July 1979, *C. H. Dodson, H. H. Morgan & T. Dodson 8552* (SEL). Prov. of Morona-Santiago: Cordillera del Cutucú, alt. 900 m, *A. Hirtz, C. Luer & J. Luer s.n.* (SEL). Prov. of Pastaza: Río Jatunyacu west of Tena, alt. 600 m, 21 Feb. 1982, *C. Luer & A. Hirtz 6930* (SEL).
VENEZUELA: Edo. Bolívar: Cerro Guaiquinima, alt. 1600-1700 m, 10 Jan. 1952, *B. Maguire 33081* (AMES, NY, VEN); Cerro Sarisarinama, Meseta del Jaua, alt. 700 m, 12 Feb. 1974, *J. A. Steyermark et al. 109114* (VEN); Gran Sabana between El Dorado and Sta. Elena de Uairén, alt. 1200-1300 m, 21 Aug. 1987, *I. Ramírez et al. 146* (NY, VEN).

Although possibly first collected in Nicaragua by Alphonse Heller, this species also occurs locally in distant localities from Ecuador to southeastern Venezuela. It is the most frequent of four in this subgenus that produces its single flower from the rhizome or from the ramicaul far below the apex.

The dark purple, hairy flower faces downward with the tip of the narrow middle sepal adherent with the apex of the synsepal, thus dividing the entrance to the interior into two apertures. The sepals are rugose-verrucose within.

A nineteenth century collection by Roezl annotated "Restrepia roezlii" is present in the Reichenbach herbarium at W with a crude sketch and the word "Peruvia." It appears to be *M. lappiformis*. At that time Ecuador was usually included in Peru by European botanists.



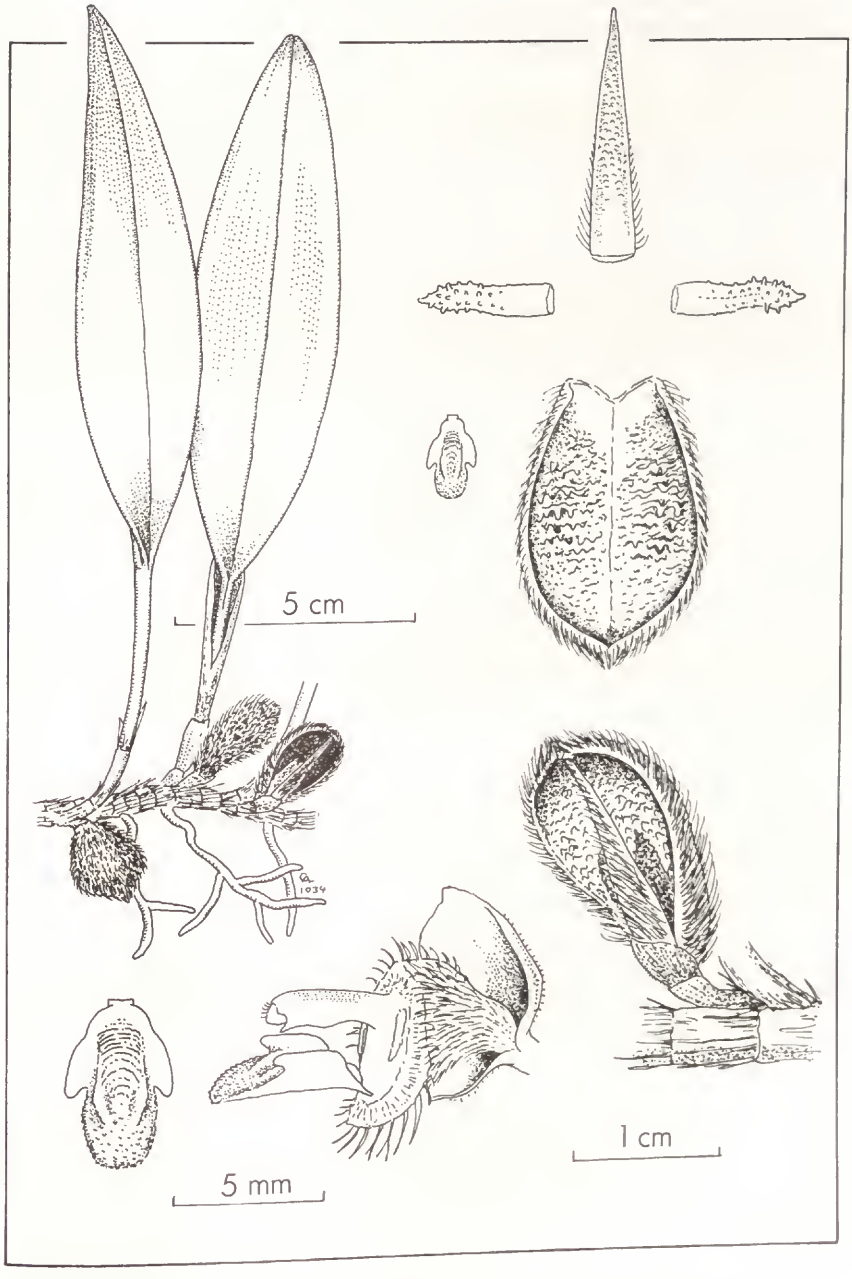


Plate 42. *Myoxanthus lappiformis* (Heller & L.O.Wms.) Luer

Myoxanthus pan (Luer) Luer, Monogr. Syst. Bot. 15: 38, 1986.

Bas.: *Pleurothallis pan* Luer, Selbyana 3: 360, 1976.

Ety.: Named for Pan, the short-horned, bristly-haired, Greek god of the forest and leader of the Satyrs.

Plant medium in size, epiphytic, shortly repent, caespitose; roots coarse. Ramicauls stout, erect, 4-8 cm long, enclosed by 3-4 imbricating, tubular, hirsute, often fragmented sheaths. **Leaf** erect, thickly coriaceous, narrowly ovate, acute, acuminate, 13-20 cm long, 2-2.8 cm wide, cuneate below into the conduplicate, sessile base. **Inflorescence** a single flower emerging from any of the lower nodes on the ramicaul or rhizome, the peduncles 6-7 mm long, pubescent, subtended by a bract equally long; floral bracts 5-7 mm long, densely pubescent; pedicels 2 mm long, pubescent; ovary 2 mm long, densely pubescent; **sepals** dull green, spotted with dark purple, fleshy, densely long-pubescent externally, spiculate-verrucose within, the dorsal sepal elliptical-ovate, obtuse, concave, 15 mm long, 10 mm wide, the lateral sepals connate to above the middle into an elliptical-ovate synsepal, 13 mm long, 11 mm wide, the rounded apex bifid; **petals** yellow, dotted with purple, verrucose, fleshy, elliptical-obovate, the apex rounded and verrucose, obtusely angled on both margins, 5 mm long, 4 mm wide; **lip** dark red-purple, ovate-trilobed, 6 mm long, 4 mm wide, the apical lobe rounded, filled with s smooth, broadly rounded callus, the lateral lobes erect, narrowly uncinate, antrorse, below the middle, the disc with an erect, narrow, channeled, horse shoe-shaped callus above the base, extending into the broad callus at the apex, with a pair of intramarginal lamellae from the bases of the lateral lobes, the base subtruncate, with broad lobules at the angles, hinged on the end; **column** white, flecked with pink, stout, semiterete, 3 mm long, with narrow wings above the middle, the foot 3 mm long, the anther with hairs on the upper margin.

PANAMA: Prov. of Veraguas: epiphytic in cloud forest northwest of Santa Fé, alt. 750 m, *R. L. Dressler s.n.* (Holotype: SEL), flowered in cultivation 25 Jan. 1977, C. Luer illustr. 1299; same area, 5 Sept. 1976, *C. Luer & R. Dressler 1588* (SEL). Prov. of Coclé, El Valle de Antón, Cerro Pajita, alt. 3400 ft., *P. Allen 4563* (G, MO).
COSTA RICA: Prov. of Heredia: Atlantic slope of Volcán Barba, between Río Peje and Río Sardinalito, alt. 700-750 m, 2 Apr. 1986, *Grayum 6652* (MO). Without locality, 1867, *A. Endres 315* (W).

This species is distinguished from the other three single-flowered species of the subgenus by the pubescent floral bracts and sheaths of the ramicaul. Like a gaping mouth of an animal, the short-pedunculate, fleshy, pubescent flower emerges laterally from the lower half of the ramicaul, or from the rhizome. The narrow, horse shoe-shaped callus above the base of the lip is similar to that seen in *M. aspasicensis*.

Myoxanthus pan is apparently rare and local in Panama and Costa Rica. It was first discovered in Costa Rica in 1867 by Endres whose superb, detailed pencil drawings are present at W, see page 12.

Myoxanthus stonei (Luer) Luer, Monogr. Syst. Bot. 15: 38, 1986.

Bas.: *Pleurothallis stonei* Luer, Phytologia 44: 171, 1979.

Ety.: Named in honor of Richard L. Stone of Los Altos Hills, CA., who discovered this species.

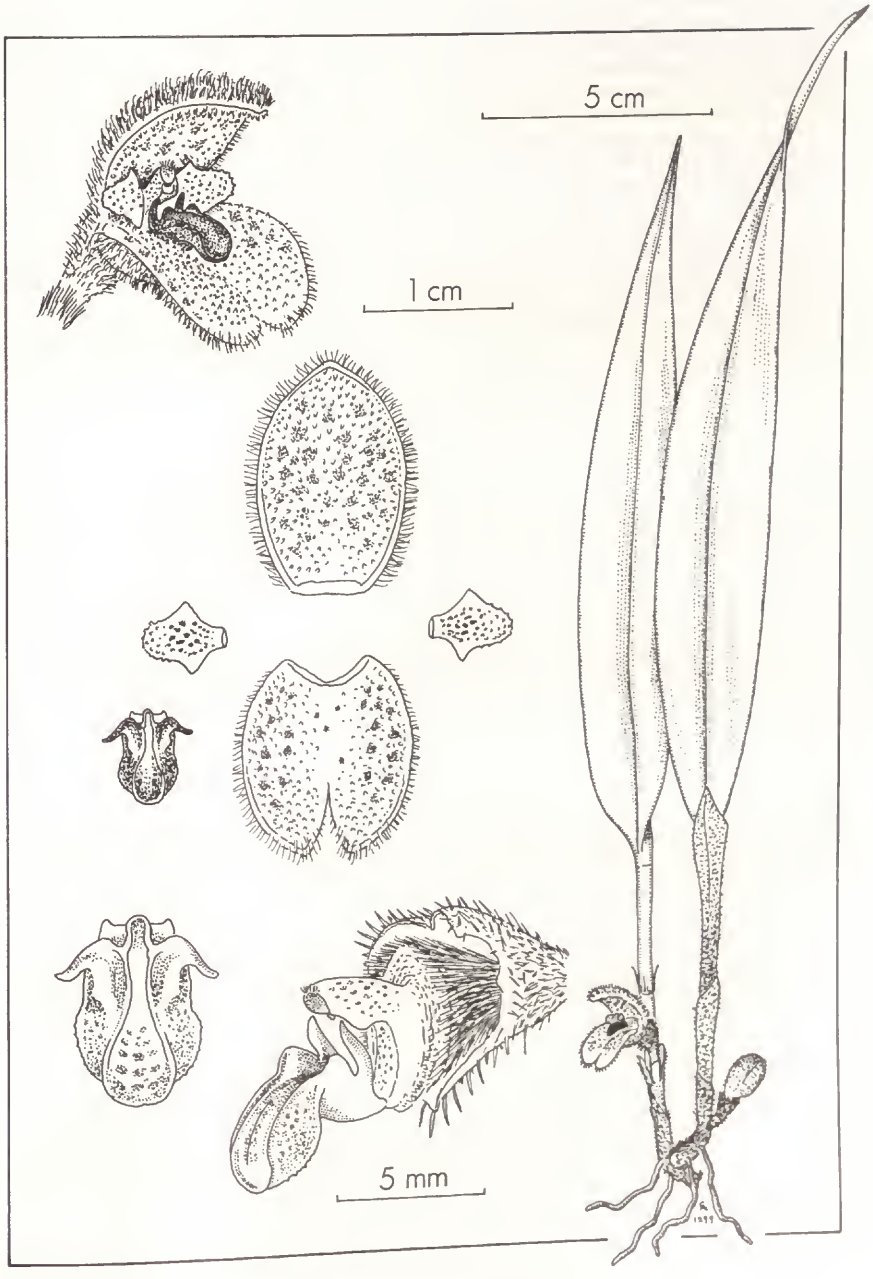


Plate 43. *Myoxanthus pan* (Luer) Luer

Plant medium in size, epiphytic, repent, the rhizome stout, 1-3 cm long between ramicauls, with fragmented sheaths; roots coarse. Ramicauls stout, ascending, 3-9 cm long, enclosed by 3-4 loose, imbricating, tubular, often fragmented sheaths. **Leaf** erect, thickly coriaceous, elliptical, subacute, 7-17 cm long, 3-4 cm wide, cuneate below into the conduplicate, sessile base. **Inflorescence** a single, non-resupinate flower emerging from any of the lower nodes on the ramicaul or the rhizome, the peduncles 10 mm long, pubescent, subtended by a bract equally long; floral bracts inflated, 10 mm long; pedicels 8-9 mm long, pubescent; ovary 3-4 mm long, densely pubescent; **sepals** dark purple, fleshy, densely long-pubescent externally, the hairs white, rugose-verrucose within, the middle sepal elliptical-oblong, subacute, 20 mm long, 8 mm wide, the lateral sepals connate into an obovate, obtuse, concave synsepal, 22 mm long, 12 mm wide; **petals** purple, fleshy, oblong, spathulate, transversely rugose at the rounded apex, 11 mm long, 4 mm wide; **lip** dark red-purple, obovate-trilobed, 9 mm long, 4.5 mm wide, the apical lobe rounded, rugose, the lateral lobes erect, narrowly uncinate, antrorse, below the middle, the disc smooth above a transverse callus across the base, with a low pair of calli from the bases of the lateral lobes, the base subtruncate, fixed to the column-foot; **column** red, semiterete, 6 mm long, rounded at the apex, the foot stout, 3 mm long.

COSTA RICA: Prov. of San José: epiphytic in cloud forest southeast of San José, collected by R. Stone, flowered in cultivation at Los Altos Hills, CA., 3 Mar. 1978, *C. Luer 2022* (Holotype: SEL).

This rare Costa Rican species is apparently known only from the original collection. It is related to *M. lappiformis*, but it is distinguished by the broad middle sepal free from the synsepal; spathulate, rugose petals; and narrowly uncinate lateral lobes of the lip.

Myoxanthus aspasicensis (Reichb. f.) Luer, Monogr. Syst. Bot. 15: 38, 1986.

Bas.: *Pleurothallis aspasicensis* Reichb. f., Bonplandia 3: 73, 1855.

Ety.: Named for the community of Aspasica in the old province of Ocaña near where the specimen was collected.

Syn.: *Humboldtia aspasicensis* (Reichb. f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis alexandrae* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 103, 1923.

Ety.: Dedicated by Schlechter to his faithful wife Alexandra nee Sobennikoff.

Syn.: *Pleurothallis pastacensis* Luer, Selbyana 3: 156, 1976.

Ety.: Named for the Ecuadorian province of Pastaza where the species was collected.

Syn.: *Myoxanthus pastacensis* (Luer) Luer, Monogr. Syst. Bot. 15: 38, 1986.

Plant medium in size to large, epiphytic, shortly repent, caespitose; roots coarse. Ramicauls stout, erect, 10-23 cm long, enclosed by 6-8 loose, tubular sheaths, often fragmented. **Leaf** erect, thickly coriaceous, narrowly elliptical, subacute, 12-25 cm long, 2-6.5 cm wide, cuneate below into the conduplicate, sessile base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles pubescent, 10-18 mm long, subtended by a spathe 2-3 cm long; floral bracts 7-9 mm long, pubescent; pedicels 4-5 mm long; ovary 6-7 mm long, pubescent; **sepals** dull green, heavily suffused and mottled in dark, dull purple, fleshy, densely short-pubescent externally, verrucose within, the dorsal sepal elliptical-obovate, obtuse to subacute, 17-25 mm long, 6-8 mm wide, 5-veined, the lateral sepals connate into an ovate, obtuse, concave synsepal, 14-21 mm long, 8-9 mm wide, each half 3-veined; **petals** yellow, spotted or striped with purple, fleshy, elliptical to obovate, subacute to obtuse, 6-7 mm long, 2-3 mm wide, 3-veined; **lip** dark purple-brown, oblong-trilobed, 5-8 mm long, 2.5-3.5 mm wide, the apical lobe lightly verrucose, occasionally smooth, obtuse to rounded, the lateral lobes erect, narrowly uncinate, antrorse, below the middle, the disc with an erect, narrow, channeled, horse shoe-shaped callus

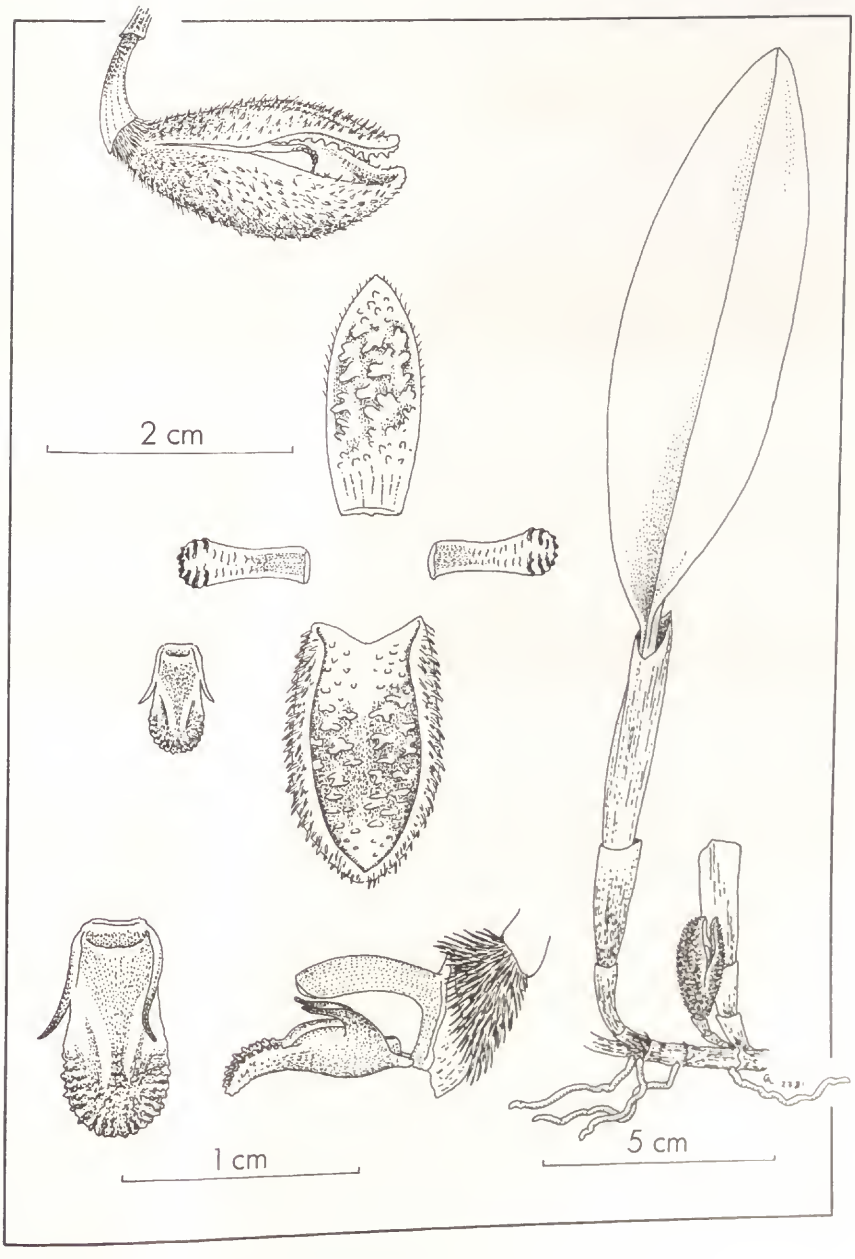


Plate 44. *Myoxanthus stonei* (Luer) Luer

above the base, with a pair of intramarginal lamellae from the middle third at the base of the lateral lobes, the base subtruncate, with a pair of broad lobules at the angles, hinged on the end; column yellow, more or less flecked with purple, stout, semiterete, 5 mm long, with narrow wings above the middle, the foot 2 mm long, the anther with hairs on the upper margin.

COLOMBIA: Dept. of Norte de Santander: near Aspasica, *H. Wagener 618* (Holotype: K). Dept. of Antioquia: Munic. of Alejandria, alt. 1800 m, Sept. 1985, flowered in cultivation by Dr. R. Londoño, 20 Mar. 1989, *C. Luer 14315* (MO).
PANAMA: Prov. of Darien, Alto de Nique, Cerro Pirre, alt. 1300-1520 m, 19 Apr. 1980, *A. Gentry et al. 28639* (MO).
COSTA RICA: Prov. of Alajuela: San Ramón, ca. 1867, *A. Endres 156* (W); Candelaria, *A. Endres 630* (W); Tablazo, alt. 1900 m, July 1909, *A. & C. Brade 1159* (type of *P. alexandrae*: B?); San Ramón, alt. 1190 m, 7 Nov. 1922, *A. M. Brenes 95* (AMES); north of San Ramón, alt. 550-1150 m, 8 Aug. 1975, *J. & K. Utley 2818* (AMES); between San Ramón and Balsas, alt. 1250 m, 2 Feb. 1979, *T. B. Croat 46843* (MO); same area, alt. 1100 m, 10 Sept. 1979, *W. D. Stevens 14148* (MO); Río San Lorenzo, alt. 1000-1300 m, 14 July 1983, *K. Barringer & B. Perry 3983* (AMES, F).
ECUADOR: Prov. of Pastaza: epiphytic 20 Km east of Puyo, alt. 1000 m, 19 Mar. 1976, *C. Luer, J. Luer & P. Taylor 949* (SEL, type of *P. pastacensis*). Prov. of Morona-Santiago: Cordillera del Condor, forest east of Guismé, alt. 1650 m, 20 Jan. 1989, *C. Luer, J. Luer, P. & A. Jesup 14015* (MO); Patchicutza, alt. 1200-1500 m, June 1991, *A. Hirtz 5519* (MO).
VENEZUELA: Terr. Fed. Amazonas: Dept. Atabapo, terrestrial in rain forest on east slope of Cerro Huachamacari, alt. 600-700 m, 3 Nov. 1988, *R. Liesner 25776* (VEN, MO); Cerro Duida, alt. 1350 m, 11 Feb. 1975, *Tillett 752-161* (MYF, VEN); Cerro Neblina, 15 Apr. 1984, *A. Gentry & Stein 46661* (MO, VEN); Cerro Yapacana, alt. 825-1000 m, 7 May 1970, *J. A. Steyermark & G. Bunting 103147* (AMES, NY, VEN). Edo. Bolívar: El Paují, alt. 900 m, 8 Nov. 1985, *R. Liesner 10745* (MO, VEN); Cerro Jaua, alt. 1850-1920 m, 28 Feb. 1974, *J. A. Steyermark et al. 109455* (VEN); La Escalera, 20 Aug. 1979, *Stergios & Rodriguez 6646* (PORT, VEN); Auyantepui, alt. 1200 m, 17 Sept. 1968, *E. Foldats 7174* (VEN); between El Dorado and Santa Elena de Vairen, alt. 1200-1400 m, 5 Feb. 1972, *J. A. Steyermark et al. 105498* (AMES, VEN); Río Paragua, minas de Maraima, alt. 300 m, 13 June 1987, *Stergios 10253* (PORT, VEN); Cerro Guaiquinima, alt. 750 m, 24 Jan. 1977, *J. A. Steyermark & G.C.K. Dunsterville 113460* (VEN); Ptari-tepui, alt. 1500 m, 27 Aug. 1944, *J. A. Steyermark 59417* (AMES); Morichal, south of El Puaji, alt. 900 m, 8 Nov. 1985, *R. Liesner 19745* (MO, NY); Luepa, Gran Sabana, alt. 1250 m, 21 Oct. 1987, *I. Ramírez & G. Carnevali 147* (TFAV, VEN); Río Churún, Aug. 1955, *G. C. K. Dunsterville 296* (AMES, VEN).
GUYANA: Cuyuni-Mayaruni region, alt. 700-850 m, 23 Dec. 1989, *L. J. Gillespie & D. R. Smart 2865* (MO, US).
BRAZIL: Edo. Amazonas: Platô da Serra Acará, alt. 1150-1250 m, 21 Feb. 1984, *A. S. Tavares, M. G. Silva & L. A. Cisneros 117* (NY).
BOLIVIA: Dept. of La Paz: Prov. of Nor Yungas, Puerto Linares above Caranavi, alt. 1410 m, 10 Mar. 1979, *S. Beck 486* (LPB); forest west of Coroico, alt. ca. 1500 m, collected Aug. 1991 by A. Hirtz et al., flowered in cultivation in Quito, Ecuador, 27 Jan. 1992, *C. Luer 16191* (MO).

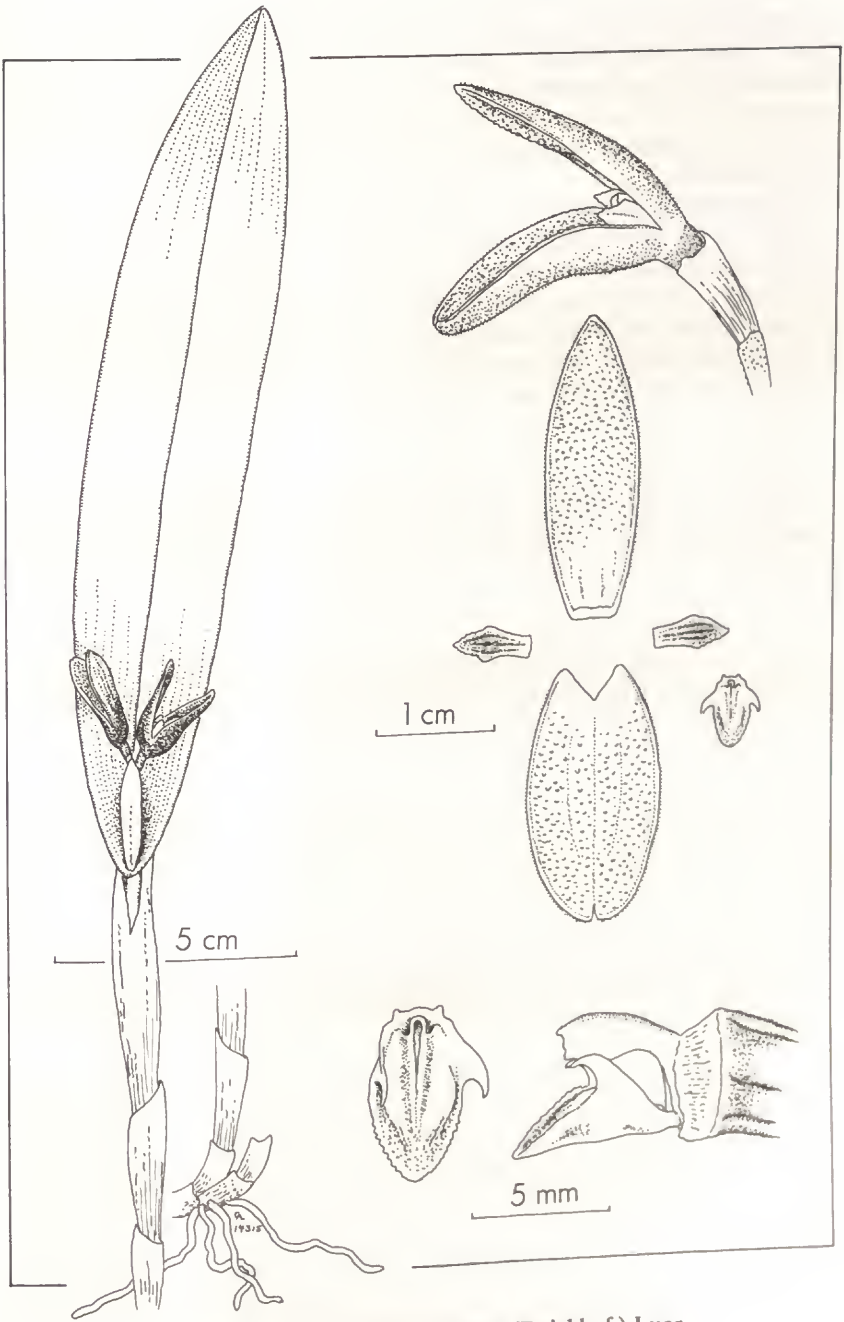


Plate 45. *Myoxanthus aspasicensis* (Reichb. f.) Luer

This species occurs relatively frequently through Central America, northern South America and the Andes at medium to relatively low altitudes. To date, it has not been recognized in Peru, but a few collections have been made in Bolivia, so it undoubtedly also occurs in intervening Peru. Although it usually occurs epiphytically in moist forests, it also grows terrestrially or lithophytically on sandstone outcrops in open habitats in sandstone areas of southern Venezuela.

Myoxanthus aspasicensis is closely related to *M. uncinatus*, but it is distinguished by the usually larger, not widely spread flower with a narrow, horse shoe-shaped callus above the base of the lip. The callus of the lip of *M. uncinatus* is broad, smooth, slightly concave and plate-like. Specimens of both *M. aspasicensis* and *M. uncinatus* were beautifully illustrated by Endres from Costa Rica in 1867. A half century later the Costa Rican plant was described by Schlechter as *P. alexandrae*. Dunsterville's illustration of this species was identified as the Central American and Jamaican *M. uncinatus* in Venezuelan Orchids Illustrated.

The type-specimen of *Pleurothallis aspasicensis* at Kew, a collection by Wagener from the old department of Ocaña in Colombia, consists of one poor, crushed flower without the lip that was accurately described . No vegetative material, that was also so well described in the original publication, is present. Lindley's citation of a different Wagener collection from "Caracas" is referable to *M. exasperatus*.

One to several large, darkly colored, reptilian flowers are borne simultaneously in a fascicle within the deep cleft of the conduplicate base of the leaf. Grossly, sterile herbarium specimens of *M. aspasicensis, M. sempergemmatus* and *M. uncinatus* are indistinguishable. Identification of Central American specimens, where the distributions of the species overlap, cannot be certain without hydrating a flower. This will account for some determinations that may not be correct.

Myoxanthus sempergemmatus (Luer) Luer, Monogr. Syst. Bot. 15: 38, 1986.

Bas.: *Pleurothallis sempergemmata* Luer, Selbyana 3: 386, 1976.

Ety.: From the Latin *sempergemmatus*, "always in bud," referring to the cleistogamous flowers.

Plant medium in size to large, epiphytic, shortly repent, caespitose; roots coarse. Ramicauls stout, erect, 18-30 cm long, enclosed by 6-8 loose, tubular sheaths, often fragmented. **Leaf** erect, thickly coriaceous, narrowly elliptical to narrowly ovate, acute, 12-22 cm long, 4-5 cm wide, cuneate below into the conduplicate, sessile base. **Inflorescence** a fascicle of single, successive, pubescent peduncles 2-4 cm long, bearing closed flowers from buds to fruit, from the apex of the ramicaul with a spathe 2-3.5 cm long;floral bracts inflated, 10-13 mm long, pedicels 8 mm long; ovary usually over 7 mm long, pubescent; **sepals** dull green, heavily suffused and mottled in dark purple-brown, fleshy, densely short-pubescent externally, the dorsal sepal ovate, narrowly obtuse, concave, 12-15 mm long, 6-7 mm wide, the lateral sepals connate into an ovate, concave synsepal, 12-14 mm long, 9 mm wide; **petals** yellow, dotted with purple, fleshy, elliptical, narrowly obtuse, 10 mm long, 3 mm wide; **lip** red, ovate-trilobed, 8 mm long, 3.75 mm wide, the apical lobe acute with inflexed margins, verrucose, the lateral lobes erect, narrowly uncinate, antrorse, near the middle, the disc with a broad, thick, transversely rugose, slightly concave callus between the lateral lobes, with a pair of intramarginal lamellae from the middle third at the base of the lateral lobes, the base subtruncate, with a pair of broad lobules at the angles, hinged on the end; **column** yellowish, stout, arcuate, semiterete, 7 mm long, with narrow wings above the middle, the foot 2 mm long, the anther with trichomes on the upper margin.

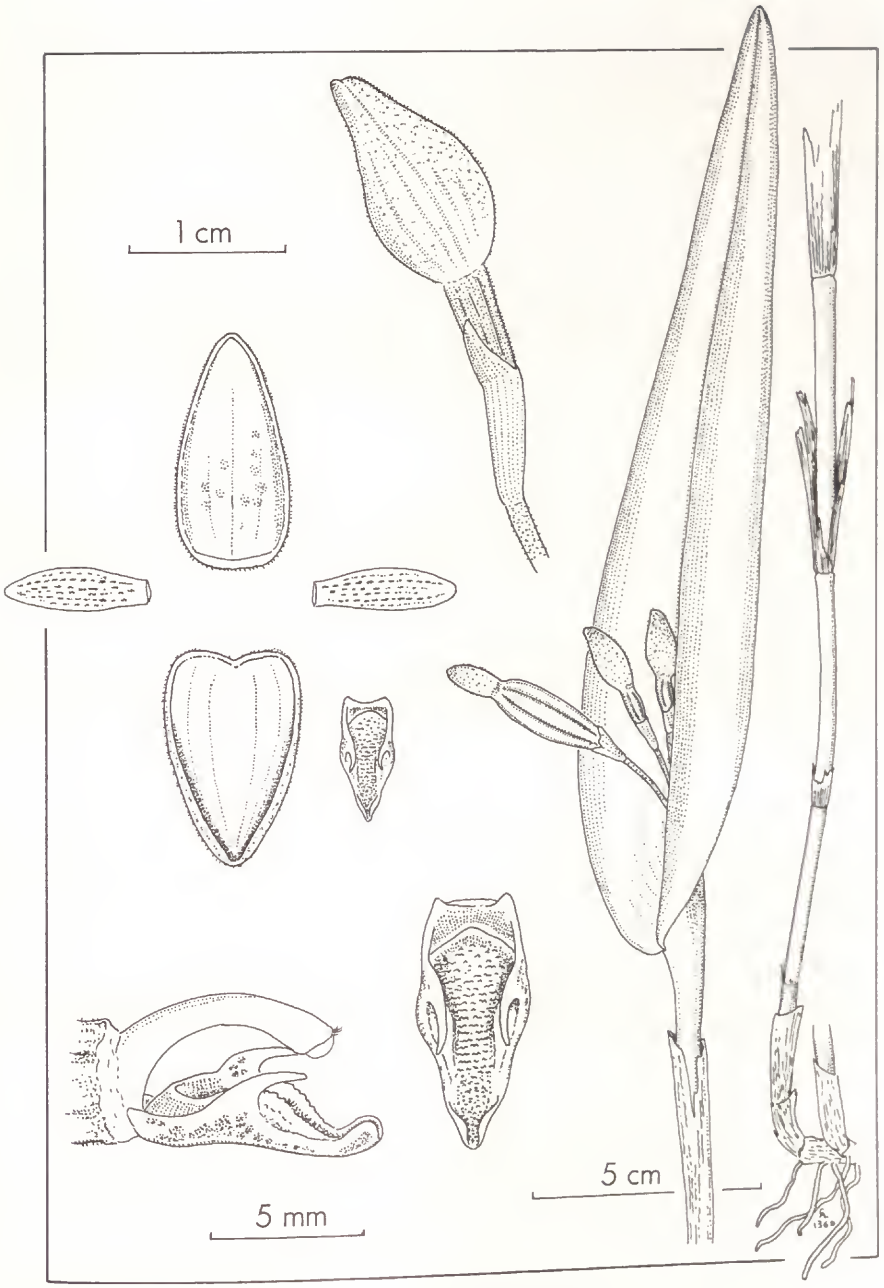


Plate 46. *Myoxanthus sempergemmatus* (Luer) Luer

PANAMA: Prov. of Chiriquí: epiphytic in forested valley above Guadalupe, alt. 2200 m, 17 Dec. 1976, *C. Luer, A. Luer, R. Dressler, N. Williams & F L Stevenson 1360* (Holotype: SEL); cloud forest above Boquete, 20 Dec. 1976, *C. Luer, A. Luer & R. Dressler 1353* (SEL); Cerro Hornito, alt. 1750 m, 27 Dec. 1977, *J. P. Folsom, R. L. Dressler & R. B. Channell 7264* (MO). Prov. of Panamá: Cerro Campana. alt. 800 m, 7 Jan. 1947, *P. H. Allen 3969* (MO).
COSTA RICA: Prov. of Guanacaste: Monteverde Reserve, alt. 1500 m, 13 July 1992, *S. Ingram, K. Ferrell & N. Edmondson 1515* (CR, F, MO, SEL). Prov. of San José: Cantón de San Rafael, Reserva Biologica "El Chompipe," alt. 2000-2050 m, 9 Jan. 1991, *S. Ingram & K. Ferrell 843* (CR, F, MO, SEL).

This robust species from the mountains Panama and Costa Rica seems little more than a cleistogamous form of *M. aspasicensis* or *M. uncinatus*. A few flowers are borne simultaneously in a fascicle from the deep cleft of the conduplicate base of the leaf. As the flower ages, the peduncle lengthens, so that several stages of maturity are usually present.

Although the flower buds do not appear significantly different from those of either *M. aspasicensis* or *M. uncinatus*, the lip differs in the acute apex with incurved sides, and in the broad, transversely rugose callus that occupies most of the disc.

Myoxanthus uncinatus (Fawc.) Luer, Monogr. Syst. Bot. 15: 38, 1986.

Bas.: *Pleurothallis uncinata* Fawc., J. Bot. 33: 12, 1895.

Ety.: From the Latin *uncinatus*, "uncinate," referring to the lateral lobes of the lip.

Plant medium in size to large, epiphytic, shortly repent, caespitose; roots coarse. Ramicauls stout, erect, 7-21 cm long, enclosed by 4-8 loose, tubular sheaths, often fragmented. **Leaf** erect, thickly coriaceous, narrowly elliptical to narrowly ovate, acute, 12-20 cm long, 2-4 cm wide, cuneate below into the conduplicate, sessile base. **Inflorescence** a fascicle of single, successive flowers, at the apex of the ramicaul, the peduncles 1.5-2 cm long, subtended by a loose sheath 1.5 cm long; floral bracts 10 mm long, pubescent; pedicels 5 mm long; ovary 3-4 mm long, pubescent; **sepals** cream, suffused and mottled in brown or purple, usually in stripes, fleshy, densely short-pubescent externally, the dorsal sepal elliptical-ovate, obtuse to rounded, 12-15 mm long, 5.5 mm wide, 5-veined, the lateral sepals ovate, oblique, obtuse, connate to near or above the middle into a concave synsepal, 11 mm long, 9 mm wide, each half 3-veined; **petals** yellow, spotted with purple, fleshy, obovate, obtuse, 6-7 mm long, 2 mm wide, 3-veined; **lip** red, oblong-trilobed, 6-7.5 mm long, 2 mm wide, the apical lobe lightly verrucose, obtuse to subtruncate, the lateral lobes erect, uncinate, antrorse, slightly below the middle, the disc with a broad, smooth, slightly concave, rounded callus between the lateral lobes, with a pair of intramarginal lamellae from the middle third at the base of the lateral lobes, the base thickened and subunguiculate below the callus, subtruncate, with a pair of broad lobules at the angles, hinged on the end; **column** yellow, flecked with purple, stout, arcuate, semiterete, 5 mm long, with narrow wings above the middle, the foot 2 mm long, the anther with hairs on the upper margin.

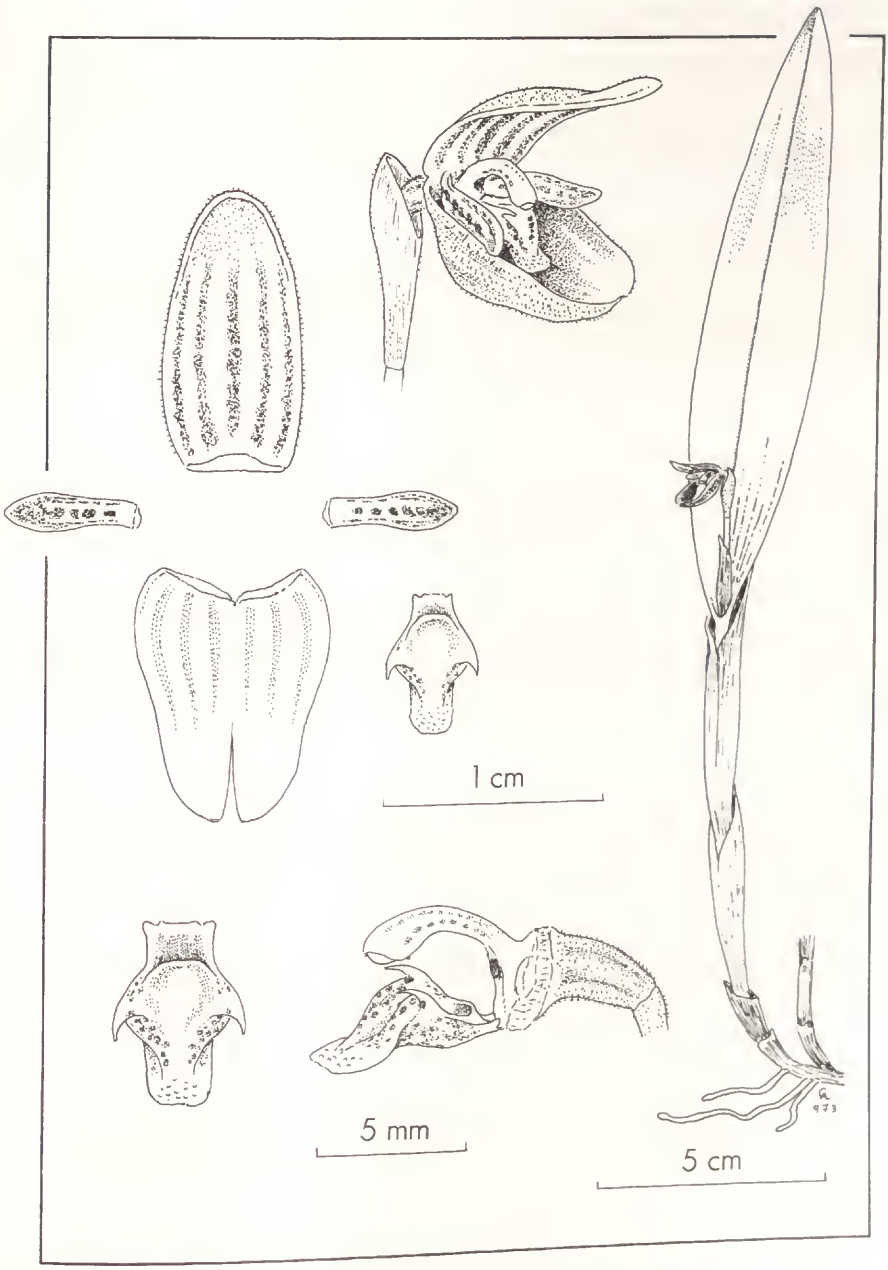


Plate 47. *Myoxanthus uncinatus* (Fawc.) Luer

JAMAICA: without locality, 1858, *Mr. March 1276* (K). Surrey Co.: St. Andrew Parish, Greenhill Wood, near Newcastle, June 1893, *W. Harris s.n.* (Holotype: K); same locality, Sept. 1892, *W. Harris 7211* (K); Hardwar Gap, alt. 4000 ft., 19 July 1903, *G. E. Nicols s.n.* (K, NY); Mt. Horab trail above Fairy Glade, alt. 4100 ft., 24 June 1963, *M. R. Crosby, H. A. Hespenheide & W. R. Anderson 296* (DUKE, MO); Fairy Glade above Hardwar Gap, alt. 1340 m, 13 Nov. 1985, *C. Luer, J. Luer, P. & A. Jesup 11942* (MO); ridge below Vinegar Hill, 5 Feb. 1908, *W. Harris 10092* (AMES, K, NY); trail from Morces Gap to Vinegar Hill, alt. 1175-1500 m, 6 Mar. 1920, *W. R. Maxon & E. P. Killip 698* (AMES, NY).
BELIZE: Cayo district, mountain pine ridge between Baldy Beacon and Sibun Hill, alt. 950 m, 23 Aug. 1980, *B. R. Adams 253* (K); Portland Parish, Mt. Caledonia, alt. 4500 ft., 5 Sept. 1962, *C. D. Adams 11618* (MO); west slopes of Silver Hill, alt. 4300-4500 ft., 25 July 1966, *W. R. Anderson & D. C. Sternberg 3256* (AMES, DUKE, MICH, MO).
NICARAGUA: Prov. of Chontales: Pistacho Peak, *fide A. Heller 6524* and Minas Babilonia, *fide A. Heller 6952*. Prov. of Rivas: Ometepe Island, Volcán Maderas, alt. 1000 m, *A. Heller 6855* (SEL).
COSTA RICA: Prov. of Alejuela: San Ramón, San Carlos between Potrero Polio and Ligna, July 1868, *A. Endres 262* (W); San Isidro, alt. 1800 m, 27 Dec. 1881, *F. C. Lehmann 1779* (G). Prov. of Cartago: El Muñeco south of Navarro, 8 Feb. 1924, *P. C. Standley 33900* (AMES); El Muñeco, Río Navarro, alt. 1400-1500 m, 6 Mar. 1926, *P. C. Standley & R. Torres 51359* (AMES); Estrella, 24 July 1925, *C. Lankester 1043* (AMES); Alto de La Estrella, alt. 1400 m, 26 Mar. 1924, *P. C. Standley 39564* (AMES). Prov. of Heredia: Cerro de Las Caricias, alt. 200-2400 m, 11 Mar. 1926, *P. C. Standley & V. Valerio 52352, 52413* (AMES); Cerro de Zurqui, alt. 2000-2400 m, 3 Mar. 1926, *P. C. Standley & V. Valerio 50829* (AMES); Yerba Buena, alt. 2000 m, 22 Feb. 1926, *P. C. Standley & V. Valerio 50168, 50201* (AMES). Prov. of San José: Las Nubes, alt. 1500-1900 m, 20 Mar. 1924, *P. C. Standley 38924* (AMES);
PANAMA: Prov. of Bocas del Toro: Cerro Colorado beyond the continental divide, alt. 1450 m, 26 Jan. 1989, *G. McPherson 13634* (MO). Prov. of Chiriquí: Bajo Chorro Boquete, alt. 6000 ft., 26 Jan. 1938, *M. E. Davidson 220* (AMES). Prov. of Coclé: El Valle, Cerro Pajita, alt. 3400 ft., May 1947, *P. C. Allen 4563* (AMES); El Valle de Anton, alt. 1000 m, 27 Sept. 1946, *P. H. Allen 3744* (MO). Prov. of Panama: road from Llano to Cartí, alt. 300 m, 4 Mar. 1976, *C. Luer, J. Luer, R. Dressler & P. Taylor 973* (SEL).

This species occurs locally through Central America and Jamaica. It was first recorded from Jamaica in 1858 by a Mr. March, and from Costa Rica in 1868 by Endres. Superb illustrations had been sent to Reichenbach about 30 years before its formal description by Fawcett from a Jamaican collection by Harris in 1893. It is closely related to the widely distributed *M. aspasicensis*, but *M. uncinatus* is distinguished by the erect, widely spread, commonly striped flower with a broad, smooth, plate-like callus above the thickened, more or less broadly unguiculate base between the lateral lobes of the lip. The flower of *M. aspasicensis*, sometimes produced a few at a time, is neither striped nor widely spread. The callus on the lip of the latter is erect and narrowly horse shoe-shaped, and channeled between the limbs.

Vegetatively the two species are similarly variable; sterile specimens cannot be distinguished. In Central America, where these two species are sympatric, herbarium specimens can be identified only by hydration of a flower. Some determinations may not be correct because of lack of time.

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INDEX OF SCIENTIFIC NAMES

Anathalis parahybunensis 34
  pulvinata 72
Brenesia costaricensis 3
Coelogyne 3
Dresslerella 2
Duboisia 1, 4
  reymondii 1, 4, 74
Duboisia-Reymondia 1, 4
  palpigera 4, 74
  lancipetala 1, 20
Chaetocephala 1, 4
Chaetocephala lonchophylla 52
  punctata 1, 4, 74
Epidendrum 3
Humboldtia affinis 13
  aspasicensis 100
  ceratothallis 20
  exasperata 34
  hystrix 50
  octomerioides 66
  peduncularis 34
  poeppigii 58
  reymondii 74
  rigidifolia 13, 14
  warmingii 52
Myoxanthus 1, 2, 3, **4**, 6, 8, 58
  subgen. Myoxanthus 1, **5**, 6, 8
  subgen. Satyria 1, 2, 3, 4, **6**, 8
  subgen. Silenia 1, 2, 4, **6**, 8
  sect. Antennella 1, **5**, 9
  sect. Myoxanthus 1, **5**, 8, 86, 92
  sect. Scandentia 1, **5**, 10
Myoxanthus affinis 2, 6, 8, **13**, 14, Plate 1., 16, 26, 28, 36, 62
  affinoides 6, 9, **16**, Plate 2.
  antennifer 1, 6, 10, **18**, Plate 3.
  aspasicensis 6, 7, 11, 98, **100**, Plate 45., 104, 106, 108
  balaeniceps 1, 6, 11, **94**, Plate 41.
  beyrichii 6
  ceratothallis 5, 6, 7, 10, **20**, Plate 4., 22, 76
  chloë 6, 10, **22**, Plate 5.
  cimex 6, 9, **24**, Plate 6., 50, 56
  colothrix 7, 8, **26**, Plate 7.
  dasyllis 7, 9, 16, **28**, Plate 8.
  ephelis 7, 10, **30**, Plate 9.
  epibator 1, 7, 11, **30**, Plate 10., 32, 80
  eumeces 7, 10, **32**, Plate 11.
  exasperatus 7, 8, 14, 26, **34**, 36, Plate 12., 62, 104
  fimbriatus 1, 7, 10, **38**, Plate 13., 80
  frutex 7, 10, **40**, Plate 14., 46, 68
  georgei 7, 10, **42**, Plate 15., 70
  gorgon 7, 8, **44**, Plate 16.
  gyas 7, 10, **46**, Plate 17.
  herzogii 7, 20
  hirsuticaulis 7, 10, **48**, Plate 18.
  hirtipes 7
  hystrix 7, 9, 24, **50**, Plate 19., 56
  lancipetalus 7
  lappiformis 6, 7, 11, 94, **96**, Plate 42., 100
  lonchophyllus 7, 9, **52**, Plate 20.
  mejiae 7, 9, **54**, Plate 21.
  melittanthus 7, 9, 24, 50, **56**, Plate 22.

(Myoxanthus)
merae 7, 10, **58**, Plate 23.
monophyllus 1, 4, 5, 8, 44, **58**, 60, Plate 24.
neillii 1, 7, 8, **62**, Plate 25.
octomeriae 7, 9, **62**, PLate 26., 66
octomerioides 7, 9, **66**, Plate 27., 78
pan *Frontispiece*, 2, 4, 6, 7, 11, 12, **98**, Plate 43.
parahybunensis 7, 34
parvilabius 7, 11, **68**, Plate 28.
pastacensis 7, 100
priapus 7, 10, **70**, Plate 29.
pulvinatus 1, 7, 9, **72**, Plate 30.
punctatus 7, 9, **74**, Plate 31.
reymondii 7, 9, 24, 50, 54, 56, **74**, Plate 32.
sarcodactylae 7, 9, **78**, Plate 33.
scabripes 7
scandens 5. 7, 11, 22, 30, 32, 38, 58, **78**, 80, Plate 34., 84
seidelii 7, 52
sempergemmatus 6, 7, 11, **104**, Plate 46.
serripetalus 7, 9, **82**, Plate 35.
simplicicaulis 7, 10, **84**, Plate 36.
speciosus 7, 8, **86**, Plate 37.
spilanthus 7
stonei 6, 7, 11, **98**, Plate 44.
trachychlamys 7, 9, **88**, Plate 38.
uncinatus 3, 6, 7, 11, 104, **106**, Plate 47., 108
uxorius 7, 10, **90**, PLate 39.
xiphion 7, 10, **92**, Plate 40.
Octomeria 66
brevifolia 18
Pleurothallis 1, 2
subgen. Acianthera 2, 3
sect. Chaetocephala 4
sect. Tomentosae 2
sect. Aggregatae 2
Pleurothallis affinis 13
alexandrae 100, 104
aspasicensis 6, 100, 104
balaeniceps 94
cerea 62, 64
ceratothallis 5, 20
chaetocephala 74
chloë 22
cimex 24

(Pleurothallis)
colothrix 26
congesta 66
cymbicalli 88
ephelis 30
eumeces 32
exasperata 34, 36, 86
furfuracea 13
frutex 40
var. robusta 46
georgei 42
gyas 46
herzogii 20
hirsuticaulis 48
hirtipes 2, 7
hystrix 50
johnsonii 3
longipes 20
lancipetala 20
lappiformis 96
lonchophylla Reichb. f. 50
lonchophylla (Barb. Rodr.) Cogn. 52
macropus 34
mejiae 54
melittantha 56
merae 58
monophylla 1
myoxanthus 58
octomeriae 62
octomerioides 66
ophiocephala 34
palpigera 74
pan 3, 6, 98
parvilabius 68
pastacensis 100
peduncularis 34, 36
penellia 78, 80
poeppigii 1, 58
pulvinata 72
ramentacea 62
reymondii 74
rigidifolia 13
sarcodactylae 78
scabripes 2, 6, 7
scandens 5, 78
var. simplicicaulis 84
seidelii 52

(Pleurothallis)
sempergemmata 104
serripetala 82
simplicicaulis 84
speciosa 86
spilantha 2, 7
stonei 98
trachychlamys 88
uncinata 106
(Pleurothallis)
uxoria 90
warmingii 52
Restrepiopsis reichenbachiana 2
Restrepia lonchophylla 1, 52
"roezlii" 96
Reymondia 4
Solanaceae 1
Stelis 2

ADDENDA TO *PLATYSTELE*, *PLEUROTHALLIS* SUBGENUS *SCOPULA* AND *SCAPHOSEPALUM*

ABSTRACT

The following new species of *Platystele* Schltr., *Pleurothallis* subgenus *Scopula* Luer, and *Scaphosepalum* Pfitz. have been discovered since the most recent additions to the genera in *Icones Pleurothallidinarum* VI and VIII. The plates are numbered as continuations of their respective publications in *Icones Pleurothallidinarum*.

New taxa:
Platystele dalstroemii Luer, sp. nov.
Platystele jamboeënsis Luer & Hirtz, sp. nov.
Platystele napintzae Luer & Hirtz, sp. nov.
Platystele psix Luer & Hirtz, sp. nov.
Platystele sulcata Luer & Hirtz, sp. nov.
Pleurothallis cosmetron Luer, sp. nov.
Pleurothallis silverstonei Luer, sp. nov.
Scaphosepalum parviflorum Luer & Hirtz, sp. nov.
Scaphosepalum pleurothallodes Luer & Hirtz, sp. nov.

Platystele dalstroemii Luer, sp. nov.

Ety.: Named in honor of Stig Dalström of Falun, Sweden, who discovered this species.

Planta perparva foliis anguste ellipticis petiolatis pedunculo plus minusve aequilongis, racemo pauci- successivifloro, sepalis microscopice pubescentibus crassisime caudatis, petalis ovatis acutis, et labello crasso ovoideo.

Plant very small, epiphytic, caespitose; roots comparatively fleshy. Ramicauls erect, slender, 2-3 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 10-22 mm long including a petiole 2-5 mm long, the blade narrowly elliptical, subacute to obtuse, 4-5 mm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, subdense, successively 2- to 3-flowered raceme up to 8 mm long, borne by a slender peduncle 10-20 mm long, emerging laterally from the ramicaul; floral bracts thin, 1.5 mm long; pedicels 3-4 mm long; ovary 0.75 mm long; **sepals** pale purplish tan, fleshy, microscopically ciliate-pubescent, the dorsal sepal ovate, acute, acuminate into a thick, terete tail about as long as the blade, 6.5 mm long, 2 mm wide, the lateral sepals similar, oblique, 6 mm long, 2.25 mm wide, barely connate at the base; **petals** pale purplish tan, ciliate, microscopically pubescent, ovate, oblique, acute, 4.5 mm long, 1.5 mm wide; **lip** purple, fleshy, ovoid, obtuse, 2 mm long, 1.5 mm wide, cellular-glandular, the disc shallowly sulcate between an indistinct pair of low, broad calli, the base subtruncate with a small pair of erect, marginal lobes, firmly hinged to the rudimentary column-foot; **column** cucullate, 0.75 mm long and broad, the stigma bilobed, the foot rudimentary.

ECUADOR: Prov. of Carchi: epiphytic in wet forest between the paramo and Maldonado, alt. 2500 m, 24 Feb. 1992, *S. Dalström 1557* (Holotype: MO), C. Luer illustr. 16219.

This species is distinguished by the very small habit, narrowly elliptical, petiolate leaves, and a peduncle about as long that bears in succession a few, comparatively large, fleshy flowers. Most distinctive are the thick, terete tails of the sepals that are about as long as the blade. The sepals and petals are microscopically pubescent and the obtuse, ovoid lip is cellular-glandular.

Platystele jamboeënsis Luer & Hirtz, sp. nov.

Ety.: Named for Río Jamboe in southeastern Ecuador where this species was discovered.

Planta perparva, racemo laxo disticho flexuoso successivifloro foliis anguste ellipticis longiore, sepalis ovatis acutis apicibus setaceis, petalis anguste ovatis apicibus setaceis, labello grandi ovoideo obtuso.

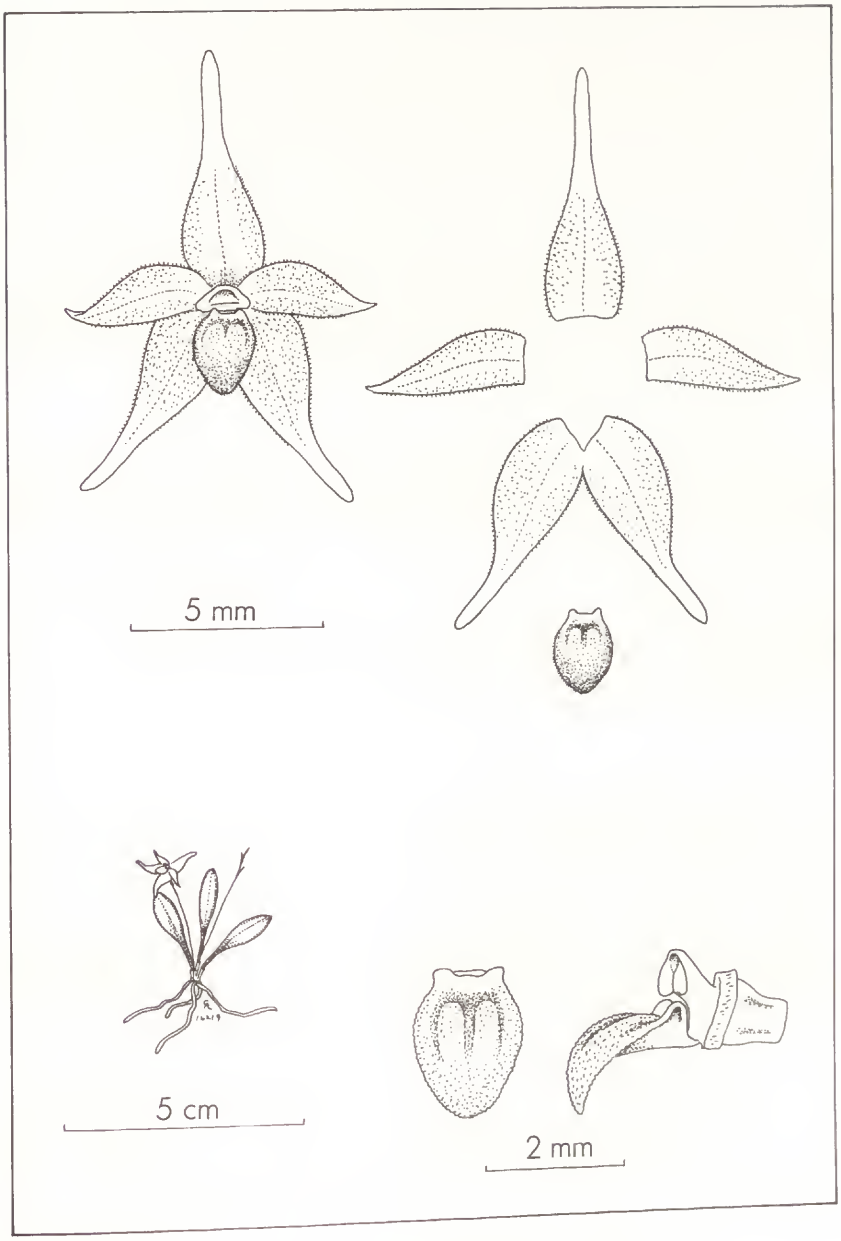

Plate 77. *Platystele dalstroemii* Luer

Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-5 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 10-20 mm long including a petiole 3-6 mm long, 3-4 mm wide, the base narrowly cuneate into the slender petiole. **Inflorescence** a loose, distichous, flexuous, successively flowered raceme up to 35 mm long, borne by a filiform peduncle ca. 20 mm long, from low on the ramicaul; floral bracts 0.75 mm long; pedicels 3-4 mm long; ovary 0.5 mm long; **sepals** yellow, glabrous, ovate, 1-veined, lightly concave, acute, acuminate in the distal half, the dorsal sepal 2.75 mm long, 1.2 wide, the lateral sepals free, 2.6 mm long, 1.2 mm wide; **petals** similar to the sepals, narrowly ovate, acute, long-acuminate, 2.75 mm long, 0.5 mm wide, with the margins at most only cellular; **lip** orange-brown, ovoid, obtuse, 1.4 mm long, 1.2 mm wide, the margins and surface glandular-cellular, the disc featureless, the base sub truncate, firmly attached to the column-foot; **column** thin, cucullate, 0.5 mm long and wide, the foot obsolescent, the anther, rostellum and stigma subapical.

ECUADOR: Prov. of Zamora-Chinchipe: epiphytic in patch of forest along Río Jamboe, alt. 1400 m, 24 Jan. 1992, *C. Luer, J. Luer, P. Jesup, A. Jesup & A. Hirtz 16144* (Holotype: MO).

This little, inconspicuous species is not particularly distinctive, but it is distinguished by a combination of morphological characters. The habit is indistinguishable from that of the sympatric *P. stevensonii* with the loose, successively flowered, flexuous raceme longer than the narrowly elliptical leaves. The sepals and petals of *P. jamboeënsis*, however, are broader and glabrous, and the lip is larger and ovoid. The lip is very similar to that of *P. densiflora, P. gyroglossa,* or *P. ovatilabia*, but these last three species are characterized by a simultaneously flowered inflorescence and non-acuminate sepals and petals.

Platystele napintzae Luer & Hirtz, sp. nov.

Ety.: Named for the community of Napintza near where this species was discovered.

Species haec *P. stevensonii* Luer similis, sed foliorum laminis suborbiculatis, sepalis ciliatis et sparsim pubescentibus, et labello ovoideo differt.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-3 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, shortly petiolate, 8-11 mm long including a petiole 1-2 mm long, the blade suborbicular to broadly elliptical, obtuse to rounded at the apex, 4.5-6 mm wide, cuneate below into the petiole. **Inflorescence** an erect, loose, flexuous, distichous, successively several-flowered raceme up to 5 cm long or longer, 3-4 flowers open simultaneously, borne by a slender peduncle 1-2 cm long, emerging laterally from the ramicaul; floral bracts thin, 0.75 mm long; pedicels 3.5-4 mm long; ovary 0.3 mm long; **sepals** yellow, glabrous, minutely ciliate, sparsely pubescent, the dorsal sepal narrowly ovate, acute, acuminate, 2.5 mm long, 1 mm wide, the lateral sepals similar, oblique, 2.5 mm long, 1 mm wide, connate 0.5 mm at the base; **petals** yellow, ciliate, very narrowly ovate, acute, acuminate, 2.25 mm long, 0.4 mm wide near the base; **lip** red, ovate, obtuse, 1.2 mm long, 0.9 mm wide, cellular-glandular, the disc featureless, the base subtruncate with a cellular-glandular glenion; **column** cucullate, 0.5 mm long and broad, the stigma bilobed, the foot rudimentary.

ECUADOR: Prov. of Zamora-Chinchipe: epiphytic in forest of the southern end of the Cordillera del Condor, near Napintza, alt. 1000 m, June 1991, *A. Hirtz 5545* (Holotype: MO), C. Luer illustr. 15306.

This species seems most similar to *P. stevensonii*, but *P. napintzae* is distinguished by the small, suborbicular leaves; several flowers produced simultaneously instead of singly; minutely ciliate, sparsely pubescent sepals; and an ovoid lip, wider below the middle instead of wider above the middle.

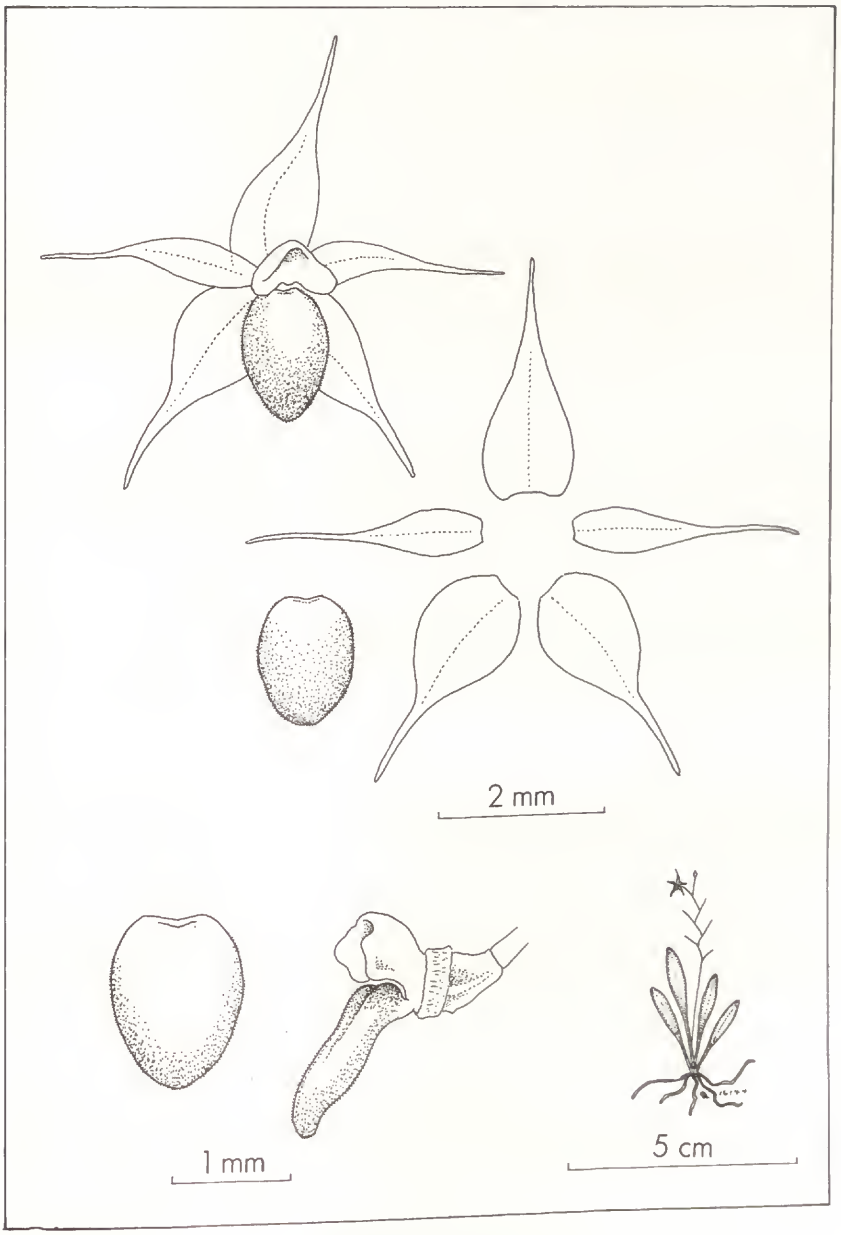

Plate 78. *Platystele jamoboeënsis* Luer & Hirtz

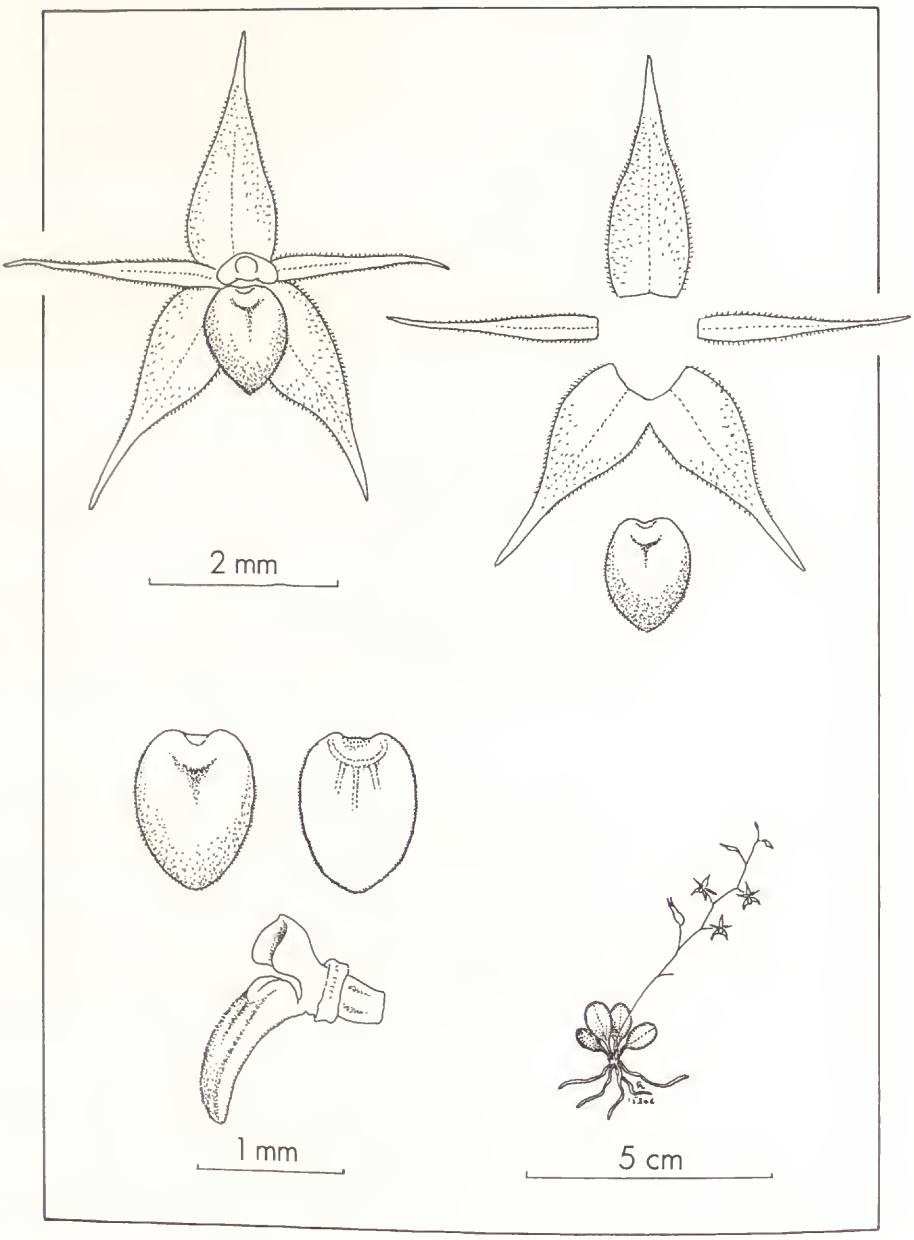

Plate 79. *Platystele napintzae* Luer & Hirtz

Platystele psix Luer & Hirtz, sp. nov.

Ety.: From the Greek *psix*, "a bit, or a crumb," in allusion to the tiny stature.

Species haec *P. oxyglossa* (Schltr.) Garay affinis, sed habitu minore, floribus minutissimis et minutissime ciliatis pubescentibusque differt.

Plant minute, epiphytic, caespitose; roots slender. Ramicauls suberect, slender, 1-1.5 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** suberect, 4-6 mm long, 1.5-2 mm wide, subpetiolate, subacute, cuneate below into the base. **Inflorescence** an erect, loose, distichous, successively few-flowered raceme up to 12 mm long or longer, borne by a slender peduncle 8-9 mm long, emerging laterally from the ramicaul; floral bracts thin, 0.75 mm long; pedicels 2.5 mm long; ovary 0.3 mm long; **sepals** yellow, cellular-ciliate, cellular-pubescent, the dorsal sepal ovate, acute, 1.8 mm long, 0.75 mm wide, the lateral sepals similar, oblique, acute, 1.8 mm long, 0.8 mm wide, connate 0.25 mm at the base; **petals** narrowly ovate, acute, 1.25 mm long, 0.4 mm wide; **lip** orange, ovate, acute, cellular-glandular, 1 mm long, 0.5 mm wide, the disc featureless, the base subtruncate with a cellular-glandular glenion; **column** cucullate, 0.5 mm long and broad, the stigma bilobed, the foot rudimentary.

ECUADOR: Prov. of Napo: epiphytic in forest around Bermejo, alt. 450-600 m, Apr. 1990, *A. Hirtz 4830* (Holotype: MO), C. Luer illustr. 15307.

This species is closely allied to the common and variable complex known as *P. oxyglossa*. However, it seems to vary sufficiently to warrant specific recognition. *Platystele psix* is distinguished by the minute habit and smaller flowers with the sepals and petals cellular-ciliate and cellular-pubescent. It is similar to another segregate, *P. taylorii*, but the lip of *P. psix* is only half the size of the sepals instead of larger.

Platystele sulcata Luer & Hirtz, sp. nov.

Ety.: From the Latin *sulcatus*, "grooved," referring to the longitudinally sulcate lip.

Species haec *P. aculeatae* Luer affinis, sed sepalis petalisque ciliatis pubescentibus et labello longitudinaliter sulcato differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-4 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, petiolate, 8-17 mm long including a petiole 2-8 mm long, the blade elliptical, acute to subacute, 3-4.5 mm wide, narrowly cuneate below into the slender petiole. **Inflorescence** an erect, loose, flexuous, distichous, successively few-flowered raceme up to 3 cm long or longer, borne by a slender peduncle ca. 1.5 cm long, emerging laterally from the ramicaul; floral bracts thin, 1.5 mm long; pedicels 2-2.5 mm long; ovary costate, 0.5 mm long; **sepals** white, ciliate-pubescent, thickly carinate, the dorsal sepal narrowly ovate, acute, acuminate, 7.5 mm long, 1.5 mm wide, the lateral sepals similar, oblique, 7 mm long, 1.75 mm wide, connate 0.5 mm at the base; **petals** white, ciliate-pubescent, very narrowly ovate-triangular, acute, acuminate, 6.5 mm long, 0.75 mm wide near the base; **lip** gray, ovate, acute, acuminate, 5.5 mm long, 1 mm wide, the base truncate with a prominent glenion, the disc with a longitudinal groove on the basal half and with a minute, round callus between the basal end of the groove and the glenion; **column** cucullate, 1 mm long and broad, the stigma bilobed, the foot rudimentary.

ECUADOR: Prov. of Napo: epiphytic in forest on the lower slope of Volcán Sumaco, Río Hollin, alt. 1200 m, Mar. 1991, *A. Hirtz & S. Ortega 5397* (Holotype: MO), C. Luer illustr. 15305.

This species is most similar to *P. aculeata* also from the eastern slope of the Andes of Ecuador but at a higher altitude. From *P. aculeata*, *P. sulcata* is distinguished by the ciliate-pubescent sepals and petals, and an acuminate lip that is distinctly sulcate on the basal half. Between the sulcus and a prominent glenion, a small, orbicular callus is present. The labellar sulcus is reminiscent of that of the much larger, Colombian *P. orectoglossa* P. Ortiz.

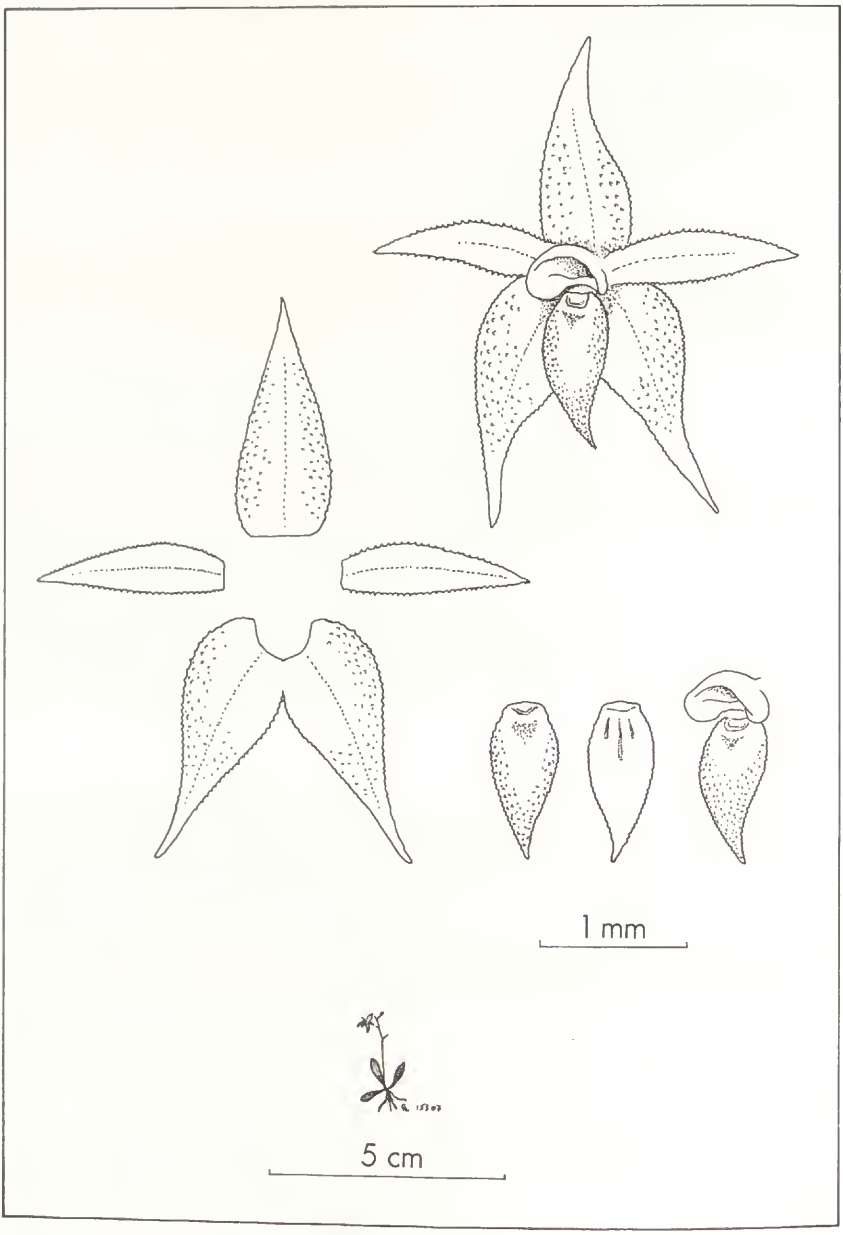

Plate 80. *Platystele psix* Luer & Hirtz

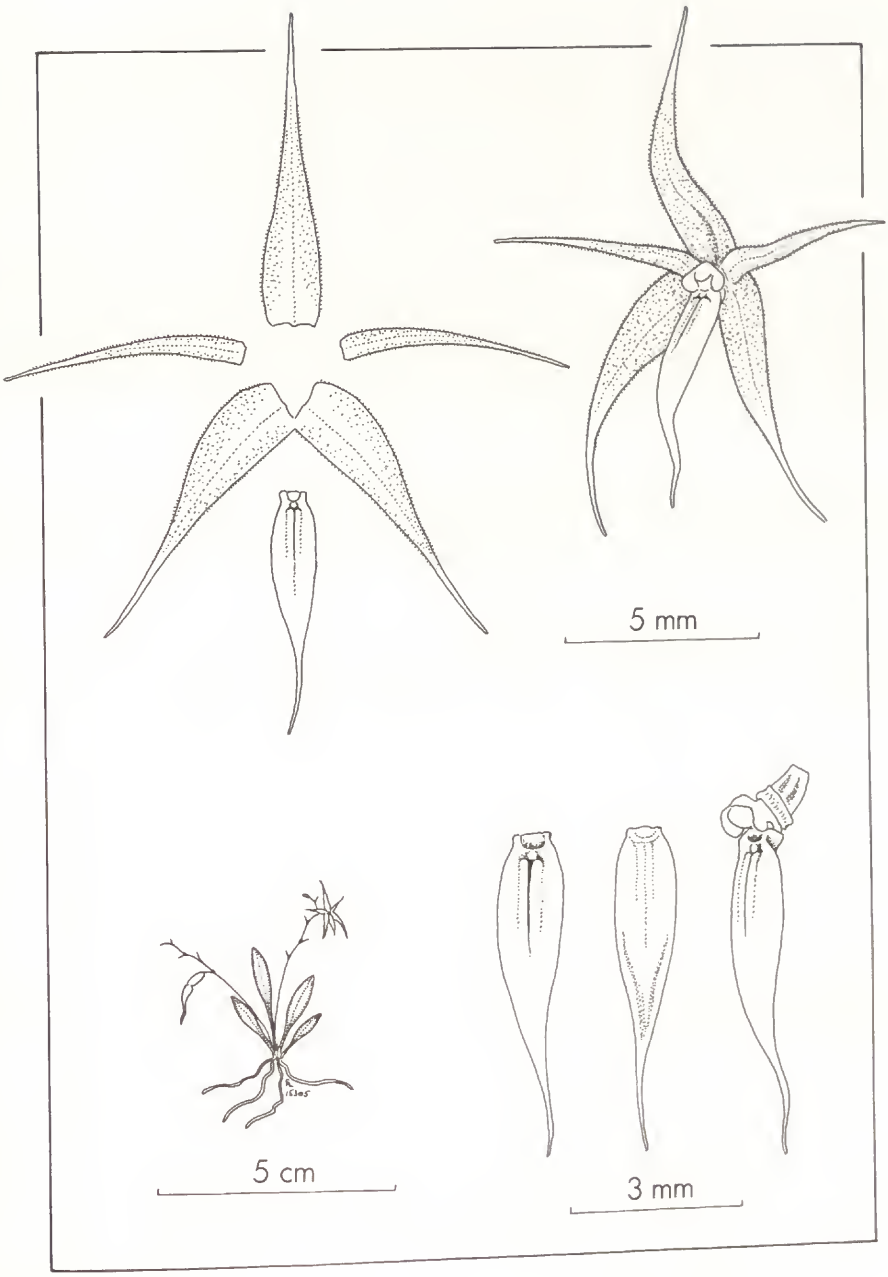

Plate 81. *Platystele sulcata* Luer & Hirtz

Pleurothallis cosmetron Luer, sp. nov.

Ety.: From the Greek *kosmetron*, "a broom," in allusion to the brushlike inflorescence.

Inter species subgeneris *Scopulae* Luer, statura grandis, ramicauli folio obovato longe decurrenti, ramicauli usque ad medium folii immerso, usque ad apicem liberi, pedunculis brevibus dense fasciculatis, sepalo dorsali synsepaloque ovatis longiacuminatis, petalis longiacuminatis marginibus minute papillosis, labello ovato acuminatissimo, disco infra medium calloso breviter pubescenti distinguitur.

Plant large, epiphytic, presumably caespitose; roots unknown (the ramicauls not complete in the specimen). Ramicauls stout, erect, more than 10-13 cm long below the leaf, no doubt with 2-3 tubular sheaths, immersed in the lower half of the leaf. **Leaf** erect, coriaceous, obovate, obtuse, shortly acuminate, 11-17 cm long, 4-6 cm wide, the base cuneate and decurrent onto the ramicaul, the vascular bundle of the inflorescence emerging near the middle of the leaf, then free for 3.5-6 cm. **Inflorescence** a dense fascicle of numerous, single-flowered peduncles 3-5 mm long, subtended by a spathe 8-15 mm long, produced at the tip of the free vascular bundle, the flowers appearing intermittently; floral bracts tubular, 3-6 mm long; pedicels 10-15 mm long; ovary 3 mm long; **sepals** yellowish according to the collector, glabrous, the dorsal sepal ovate, concave in the lower third, the apex acute, long-acuminate, 10-11 mm long, 2.75-3 mm wide, 3-veined, the lateral sepals completely connate into a synsepal similar to the dorsal sepal, 10-11 mm long, 3.75 mm wide, 4-veined; **petals** ovate and oblique in the lower third, the apex acute, long-acuminate, 10 mm long, 2 mm wide, 3-veined, with the margins cellular-papillose; **lip** ovate, the apex acute, long-attenuate, 3.5 mm long, 1 mm wide, the margins subacutely angled above the base, the lower third occupied by a thick, shortly pubescent callus, the base truncate, delicately hinged to the column-foot; **column** thick, semiterete, 1 mm long and wide, the foot abbreviated, the anther, rostellum and stigma subapical.

COLOMBIA: Dept. of Córdoba (ex-Bolívar): Páramo de Chaquiro, epiphytic in subparamo shrub zone, alt. 2800-3100 m, 24 Feb. 1918, *F. W. Pennell 4352* (Holotype: NY), C. Luer illustr. 15511.

This species of subgenus *Scopula* is very rare in northern Colombia, apparently not having been collected before nor since the original collection by Francis W. Pennell in 1918. Unfortunately, the ramicauls of all five specimens have been broken off above the bases, so that neither their total length nor the habit of the rhizome and roots is known.

The large, obovate leaf with the ramicaul embedded within the lower half, and then with the vascular bundle of the inflorescence free to near the apex of the leaf is distinctive. At the tip of the free portion a densely fasciculate mass of peduncles and pedicels accumulates, resembling a small shaving brush. The flowers are produced singly and successively. The sepals and petals are most similar to those of *P. scoparum* Reichb. f. and *P. tetroxys* Luer. The long-attenuate apex of the lip is most distinctive.

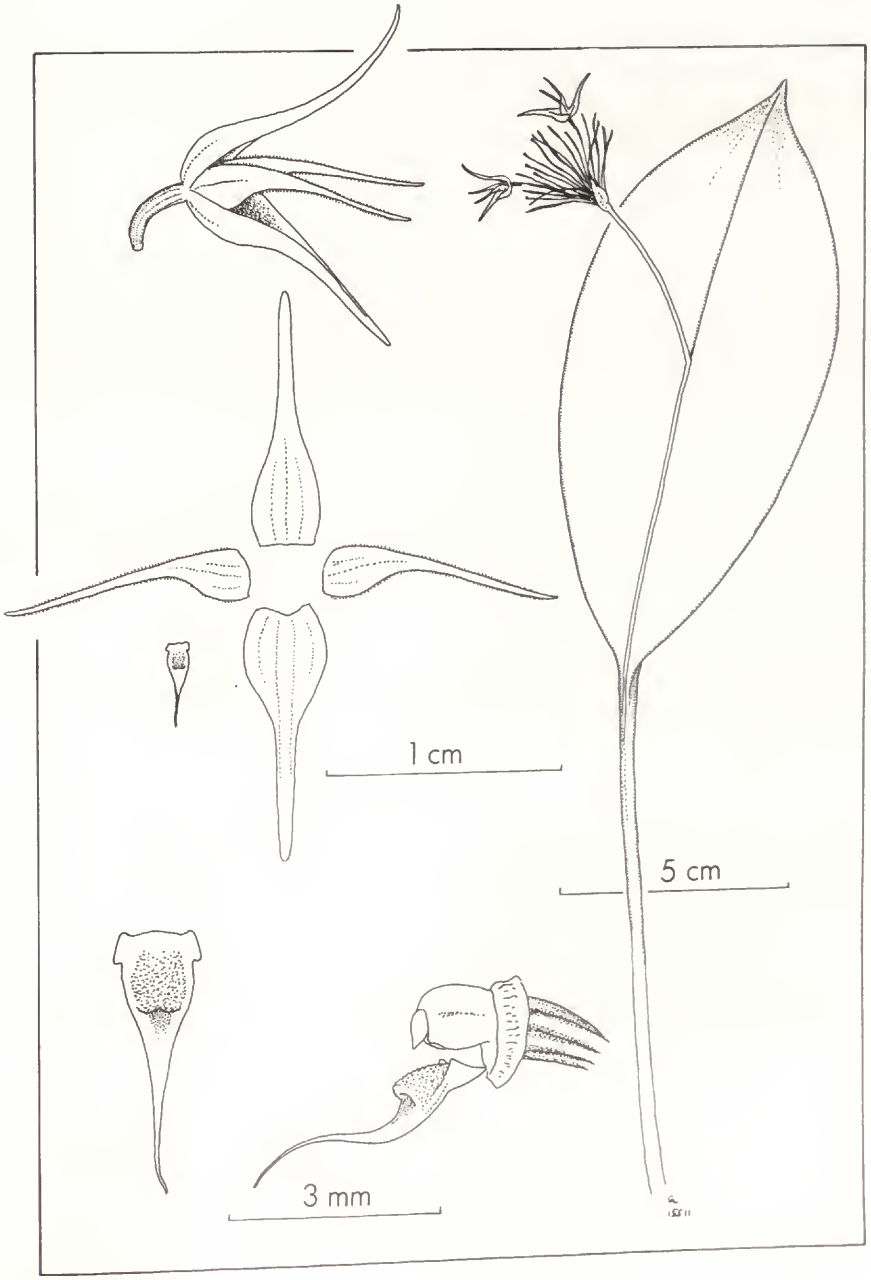

Plate 7. *Pleurothallis cosmetron* Luer

Pleurothallis silverstonei Luer, sp. nov.

Ety.: Named in honor of Philip A. Silverstone-Sopkin, of the herbarium of Universidad del Valle, Cali, Colombia, co-discoverer of this species.

Inter species subgeneris *Scopulae* Luer, statura grandis, ramicauli folio elliptico longe decurrenti, ramicauli usque ad medium folii immerso, usque ad apicem liberi, pedunculis dense fasciculatis, sepalo dorsali ovato concavo acuminato, synsepalo ovoideo concavo ad basim saccato, petalis ellipticis acuminatis, labello calceolari acuto ad basim saccato distinguitur.

Plant large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, compressed near the apex, 10-25 cm long below the leaf, with a close tubular sheath on the lower third and 2-3 other tubular sheaths at the base, immersed above in the lower half of the leaf, then free for 4-9 cm. **Leaf** erect, coriaceous, elliptical, obtuse, shortly acuminate, 7-15 cm long, 3.5-6.5 cm wide, the base cuneate and decurrent onto the ramicaul, with the vascular bundle of the inflorescence emerging near the middle, then free for 4-9 cm. **Inflorescence** a dense fascicle of numerous, single-flowered peduncles 5-15 mm long, subtended by a spathe 6-7 mm long, the flowers produced intermittently; floral bracts tubular, 5 mm long; pedicels 10-20 mm long; ovary 3.5 mm long; **sepals** white, occasionally with yellow dots, glabrous, the dorsal sepal ovate, concave in the lower half, the apex acute, lightly acuminate, 9.5 mm long, 3.5 mm wide unexpanded, 3-veined, the lateral sepals completely connate into an ovoid, concave synsepal, 10 mm long, 2.5 mm wide unexpanded, 4-veined, narrowly obtuse at the apex, saccate at the base; **petals** white, ovate, acute, acuminate, 8.5 mm long, 3.25 mm wide, 3-veined; **lip** yellow, ovoid-subpanduriform, acute, 6 mm long, 1.5 mm wide unexpanded, the margins rounded and erect below the middle with an obscure fold toward the base, the disc with a pair of low calli above the middle, the base deeply saccate, solidly connate behind the bulbous base of the column; **column** semiterete, 2 mm long, prominently bulbous below the middle, without a foot, the anther, rostellum and stigma apical.

COLOMBIA: Dept. of Valle del Cauca: Munic. El Cairo, Cerro del Inglés, Serranía de los Paraguas, epiphytic in primary cloud forest, alt. 2400 m, 28 Dec. 1986, *P. A. Silverstone-Sopkin, N. Paz, R. T. González, I. Cabrera & D. Garcés 2667* (Holotype: CUVC; Isotype: MO), C. Luer illustr. 16303; same locality, 3 Jan. 1987, *P. A. Silverstone-Sopkin, N. Paz, R. T. González, I. Cabrera, D. Garcés & A. Henao 2905* (CUVC, MO); same locality, 1 Apr. 1988, *P. A. Silverstone-Sopkin, N. Paz, R. Eriksson et al. 3949* (CUVC, MO). Dept. of Chocó: Munic. of San José del Palmar, Cerro del Torrá, epiphytic in elfin forest, alt. 2500 m, 14 Aug. 1988, financed by the National Science Foundation, grant 3884-88, *P. A. Silverstone-Sopkin, N. Paz, R. T. González, J. E. Ramos, L. H. Ramos & A. Henao 4378* (CUVC, MO); same locality, 18 Aug. 1988, financed by the National Science Foundation, grant 3884-88, *P. A. Silverstone-Sopkin, N. Paz, R. T. González, J. E. Ramos, L. H. Ramos & A. Henao 4551* (CUVC, MO).

Recently this large species of subgenus *Scopula* has been found several times in two localities on the western slopes of the Colombian Andes. Apparently it has never been collected before.

The ramicaul is embedded within the lower half of a large, elliptical leaf, then the vascular bundle of the inflorescence emerges and is free-standing to near the apex of the leaf. At the tip of the free bundle a densely fasciculate mass of peduncles and pedicels accumulates. The flowers are produced singly and successively. The flowers are most similar to those of *P. penicillata* Luer, the synsepal and lip of both species being saccate at the base. The lip of *P. silverstonei* is considerably larger with rounded, erect lateral margins.

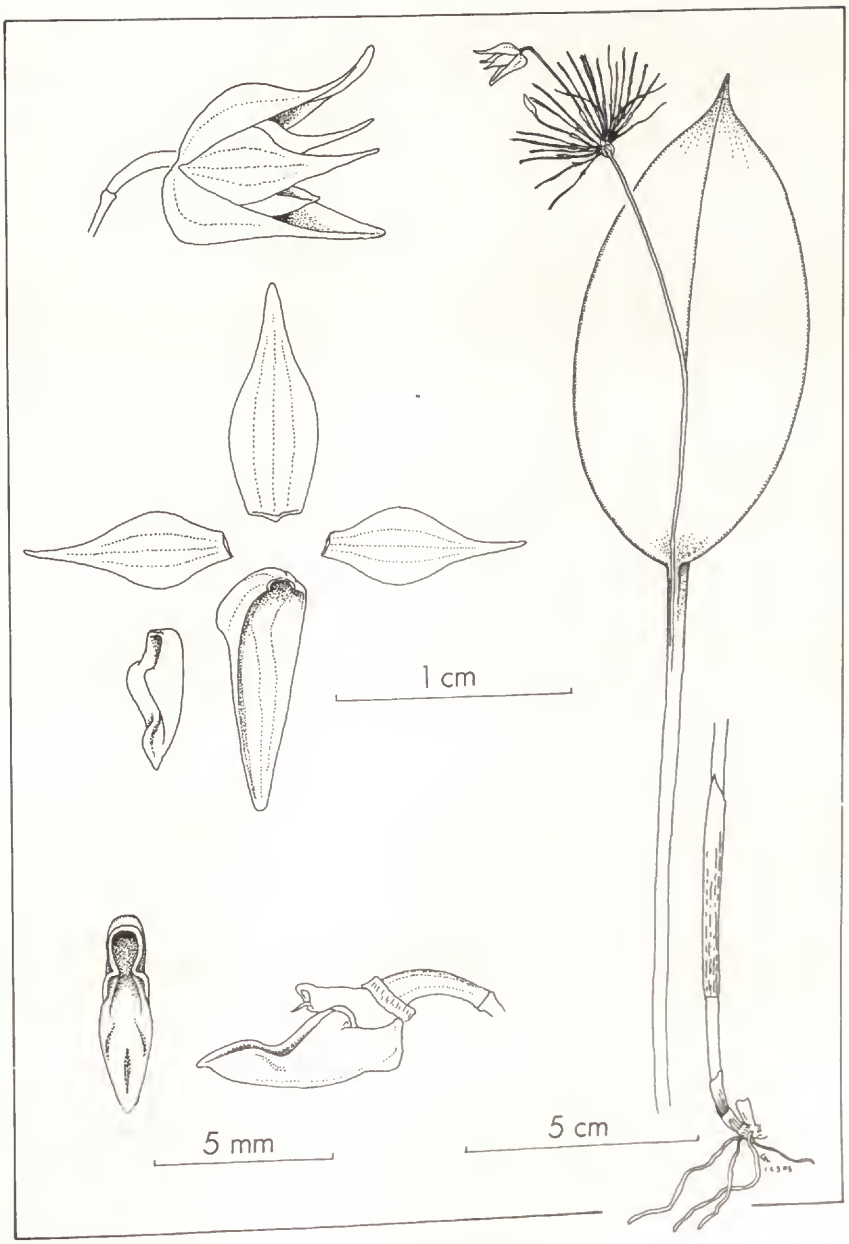

Plate 8. *Pleurothallis silverstonei* Luer

Scaphosepalum parviflorum Luer & Hirtz, sp. nov.

Ety.: From the Latin *parviflorus*, "with small flowers," referring to the size of the flowers.

Planta parva, inflorescentia descendenti laxe pauciflora, pedunculo laevi foliis anguste obovatis plus minusve aequilongo, floribus parvis coloratis, sepalo dorsali ecaudato, caudis sepalorum lateralium brevicaudatis, petalis oblongis truncatis, et labello suboblongo bialato bicristato apice deflexo retuso.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, petiolate, 4-5.5 cm long including the 1-1.5 cm long petiole, the blade elliptical, subacute to acute, 1-1.2 cm wide, cuneate below into the slender petiole. **Inflorescence** a loose, flexuous, successively few-flowered raceme up to 8 cm long or longer, including the slender, smooth, descending peduncle, from low on the ramicaul; floral bracts 2 mm long; pedicels slender, 3-4 mm long; ovary smooth, 2-2.5 mm long; **sepals** membranous, glabrous, carinate, the dorsal sepal dark purple, ovate, acute, ecaudate, deeply concave, 4.5 mm long, 3.5 mm wide expanded, connate to the lateral sepals for 1 mm, the lateral sepals translucent with red dots, minutely ciliate, ovate, oblique, concave, 4 mm long, 3 mm wide, connate 2 mm, the apex obtuse, abruptly contracted into a tail 3 mm long, the cushion microscopically pubescent, transversely oblong, 1.5 mm long, 0.5 mm wide; **petals** rose, oblong, truncate, 2.5 mm long, 2 mm wide, 2-veined; **lip** dark brown, oblong-trilobed, 2.5 mm long, 1 mm wide, with the apical lobe narrow, retuse, deflexed, with a pair of erose, winglike, lateral lobes above the middle, the disc with a pair of erose lamellae at the junction of the apical lobe, the base subtruncate, bilobulate; **column** broadly winged for most of the length, arcuate, 2.5 mm long, the thick foot equally long.

ECUADOR: Prov. of Napo: epiphytic in forest along Río Pano near Tena, alt. 600 m, Jan. 1992, flowered and cultivated in Quito, Ecuador, 29 Jan. 1992, *C. Luer 16192* (Holotype: MO).

This little species is distinguished by the petiolate leaves and a more or less descending, successively few-flowered raceme of colorful flowers. The dorsal sepal is deeply concave and tailless; the lateral sepals are also concave, but with short tails. The cushions are transverse; the petals are oblong and truncate; and the lip is oblong with erose wings above the middle and a pair of erose lamellae at the junction with the deflexed, wedge-shaped apex.

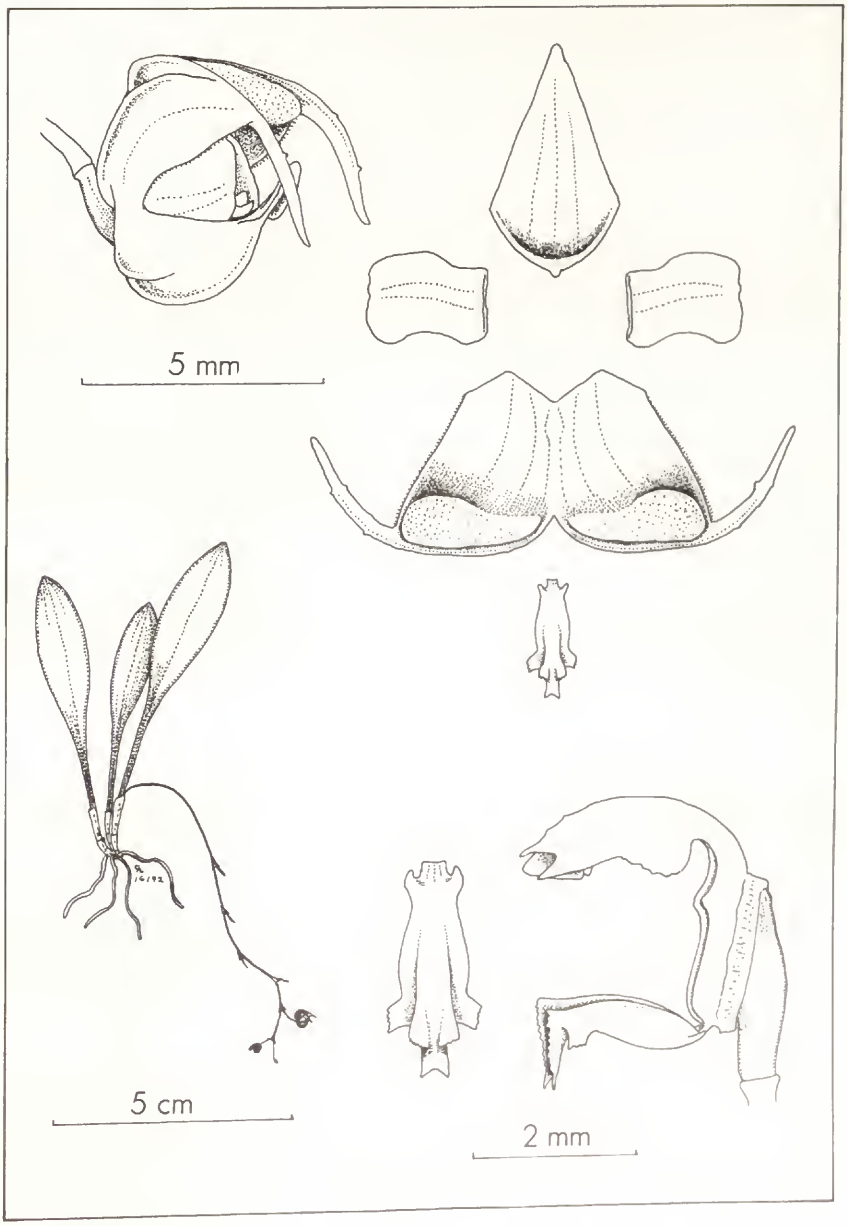

Plate 47. *Scaphosepalum parviflorum* Luer & Hirtz

Scaphosepalum pleurothallodes Luer & Hirtz, sp. nov.

Ety.: Named for the similarity of the species to a species of *Pleurothallis*.

Planta parva, racemo laevi suberecto, floribus flavis rubropunctatis, sepalo dorsali ecaudato, sepalorum lateralium caudis brevissimis, petalis spathulatis, labello crasso oblongo-ovato obtuso minute spiculato marginibus infra medium obtusis erectis.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-4 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 1.5-3 cm long including the subpetiolate base, the blade elliptical-obovate, subacute to acute, 5-6 mm wide, gradually narrowed below to the base. **Inflorescence** a loose, successively few-flowered raceme up to 3.5 cm long or longer, including the slender, smooth, suberect peduncle, from low on the ramicaul; floral bracts 2 mm long; pedicels slender, 4 mm long; ovary lightly costate, 1.75 mm long; **sepals** yellow with red spots, glabrous, fleshy, tall-carinate, the dorsal sepal oblong, obtuse, concave, 5 mm long, 2 mm wide, the apex obtuse, thickened, pubescent, the lateral sepals elliptical, connate 3 mm into a bifid lamina, concave, shortly ciliate, carinate lamina, 4.5 mm long, 3.5 mm wide together, the apical half of each lateral sepal occupied by an oblong cushion, 3 mm long, 1.5 mm wide, microscopically pubescent, the obtuse apices contracted into apiculum-like tails, 0.5 mm long, sparsely minutely spiculate; **petals** yellow, obovate, obtusely angled on both margins above the middle, 2.5 mm long, 1.5 mm wide, 2-veined, the apex obtuse, minutely triapiculate; **lip** yellow, dotted with red, thick, pubescent, oblong-ovate, obtuse, 2.75 mm long, 1.25 mm wide, the margins erect and obtuse below the middle, the disc with an obscure pair of low calli above the middle, the base truncate, hinged on the end; **column** semiterete, arcuate, winged above the middle, denticulate at the apex, 3 mm long, the thick foot 2 mm long, glandular pubescent.

ECUADOR: Prov. of Napo: epiphytic in wet forest along Río Jatunyacu, alt. 650 m, 12 Mar. 1991, *A. Hirtz & S. Ortega 5359* (Holotype: MO), C. Luer illustr. 15309.

In lowland eastern Ecuador Alexander Hirtz recently discovered a large, fallen tree trunk that had been host to numerous small orchids. Among the mass of epiphytes were many plants of three superficially similar, small, tufted, yellow-flowered pleurothallids. For specimens he selected several of each that appeared to be a different species. Two of them have proved to be known species of *Pleurothallis* subgenus *Specklinia* section *Muscariae* that had been described in 1975 from a neighboring area.

Pleurothallis xanthella Luer (Figure 1.) has small, yellow flowers with carinate sepals thickened at the apices and lightly spiculate externally; fimbriate petals; and a thick, oblong, verrucose lip. To date this species has not been identified from an area far from the original locality.

Pleurothallis acanthodes Luer (Figure 2.) has small, yellow flowers usually marked with purple; carinate-spiculate sepals; spathulate petals; and a thick, oblong, verrucose lip. Most unusual are the lateral sepals that are thickened and more or less recurved toward blunt apices in a manner resembling the

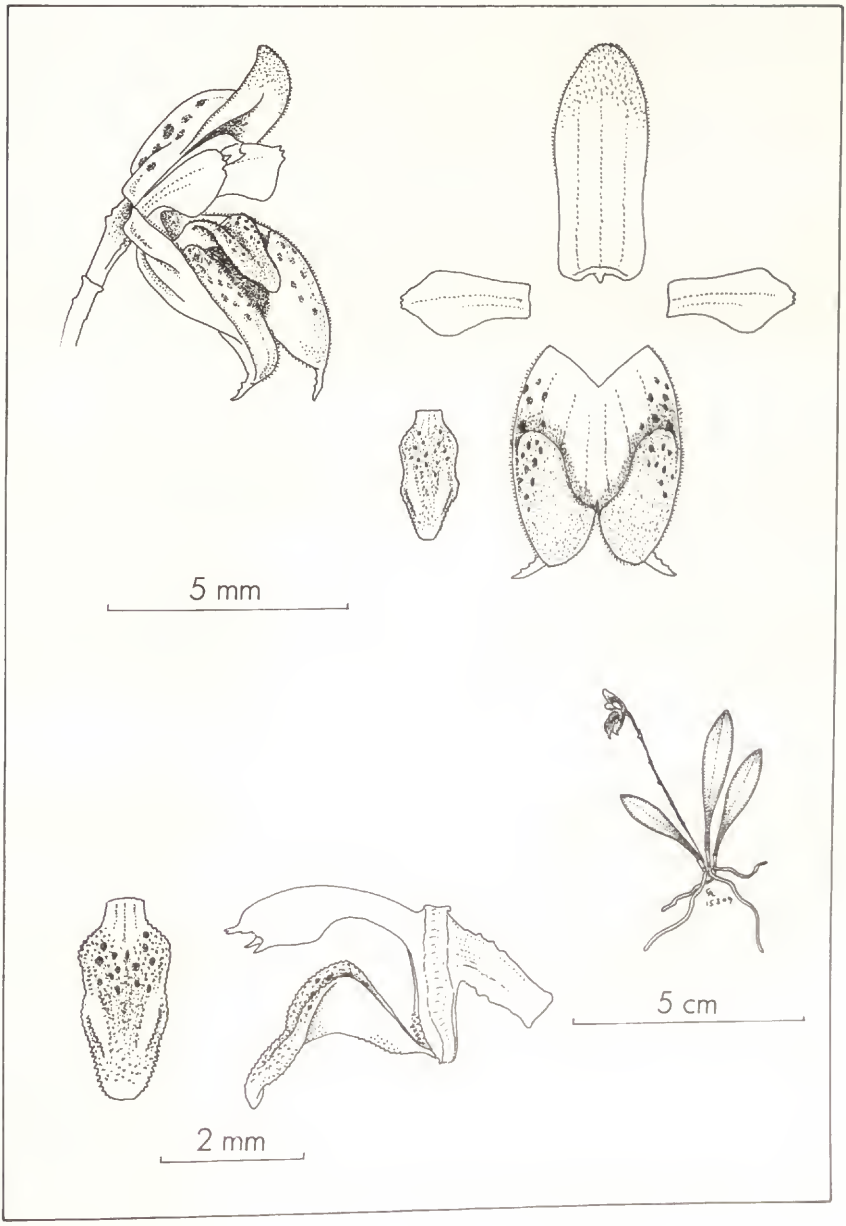

Plate 48. *Scaphosepalum pleurothallodes* Luer & Hirtz

sepaline cushions of a *Scaphosepalum*. This species is widely distributed in the Andes from Ecuador into Bolivia.

Although superficially similar to the two preceding species, the third species of the trio is a *Scaphosepalum* with small, yellow flowers marked with purple, and with typical sepaline cushions and short tails. The dorsal sepal, however, is oblong, obtuse and tailless. The petals are spathulate and minutely toothed at the apex. The lip is thick, ovoid and minutely spiculate, similar to many lips seen *Pleurothallis*, but a most unusual finding in *Scaphosepalum*. *Scaphosepalum pleurothallodes* is known so far only from this recent collection.

The widely distributed *Pleurothallis acanthodes* has features somewhere between *P. xanthella* and *Scaphosepalum pleurothallodes*, and the unusual *S. pleurothallodes* has features suggestive of *Pleurothallis*. No other species is known to have features intermediate between *Scaphosepalum* and another genus. The question of parallel evolution or the remote possibility of intergeneric hybridization arises. This interesting phenomenon should be investigated.

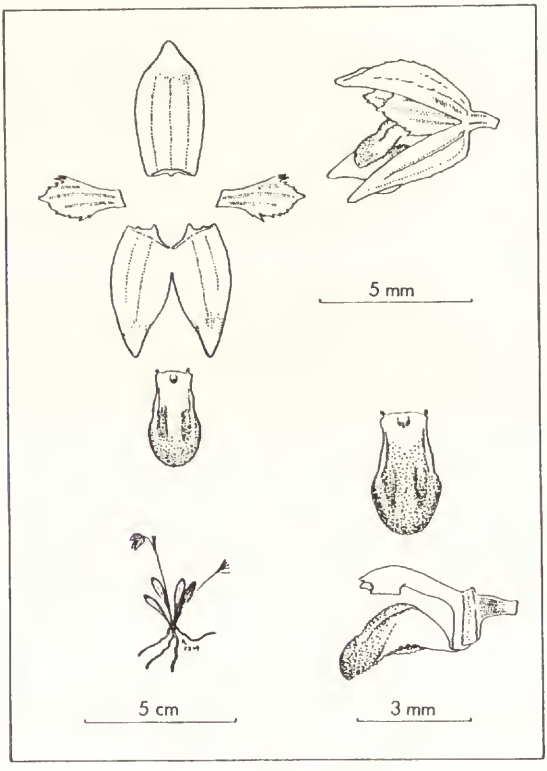

Figure 1. *Pleurothallis xanthella*

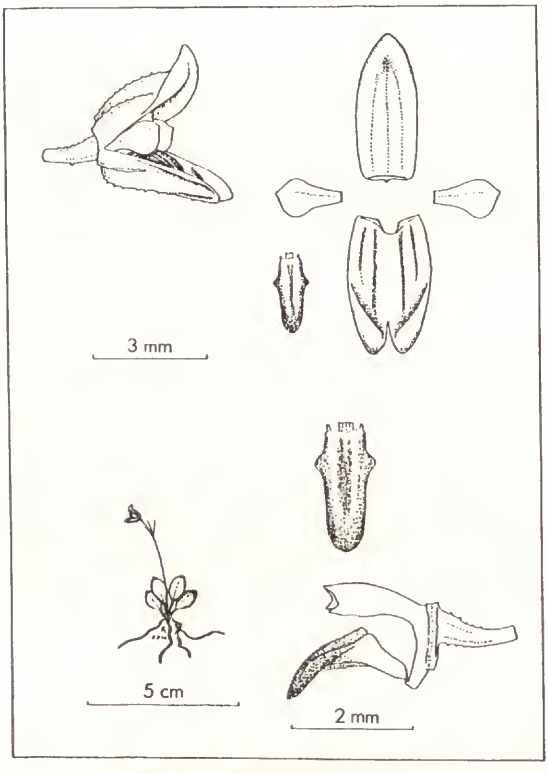

Figure 2. *Pleurothallis acanthodes*

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